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ORIGINAL LECTURES.

CLINICAL LECTURE ON LICHEN PLANUS.

BY LOUIS A. DUHRING, M.D.,

Professor of Diseases of the Skin in the University of Pennsylvania.

Reported by ARTHUR VAN HARLINGEN, M.D., Chief of the Skin Clinic.

GENTLEMEN,—The patient, Mrs. E., presents herself at the clinic to-day for the first time, giving the following history. She is 38 years of age, married, and has given birth to nine children, six of whom are now living. Up to the time when the present affection made its appearance, her general health had always been very good. She has never had rheumatism. During childhood she suffered from occasional attacks of "hives." Since then she has never had skin disease of any kind whatever, until last August, during the earlier half of which, and while the weather was very hot, she began to notice an eruption gradually showing itself here and there. This consisted at first of a few papules scattered over the chest and back, which by degrees became more and more numerous, the old ones remaining while new ones continued to show themselves. Within two weeks the eruption had spread so that the chest and back were very nearly covered. It then extended gradually down the arms, forearms, and even to the backs of the hands, the palms remaining free. Later, it appeared on the thighs below the groins, and on the buttocks, and extended, as in the case of the upper extremities, slowly downwards, the backs of the feet becoming finally involved, but the soles remaining free. By the middle of October, two months after the onset of the eruption, it had reached its present extent, and during the last six weeks it has been very nearly at a stand. A few lesions still show themselves from time to time, while some of the older patches are dying away.

When the eruption first appeared, the individual papules were no larger than pins' heads, and bright red in color, so that they were mistaken for prickly heat. The larger patches at present existent have been formed by a number of small lesions coalescing. The patient is quite sure that the individual papules have not increased materially from their original size. The color of the lesions changes as they grow older, becoming after a time purplish, more dusky and brownish. During the first six weeks after the outbreak of the eruption the general color was quite bright red, but about that time it seemed to become all at once very generally darker. There has never been any exudation of fluid at any period of the disease; no vesicles have formed, and consequently no crusts have been observed; the eruption has at all times been perfectly dry.

Itching has been a very constant and annoying symptom. Of late the patient has been so tormented by it as to be scarcely able to sleep. When out in the open air and in cold weather, she is not much annoyed by it, but when she perspires freely or becomes warm in bed the itching is intolerable.

Her general health, which, as stated, had been good up to the appearance of the eruption, has since that time become gradually impaired. She feels feeble and languid, and has not the same disposition to active work as formerly. Her appetite is good; bowels regular; menstrual function normal. She is at present suckling an infant fifteen months of age.

Coming now to the present aspect of the affection, we find the patient a medium-sized woman, thin, almost wiry, with a sallow, dark complexion, and a tendency to the deposition of pigment, due, she asserts, to exposure, and not connected in any way with the disease.

The eruption is, we see, disposed over the surface as above described. The head and neck are entirely free, as also the palms and soles. On the trunk the eruption is most plentiful over the back and shoulders, somewhat less so on the chest, and becoming more scanty lower down, until over the lower abdominal, inguinal, and gluteal régions it is quite sparse. Over the arms and legs, particularly from just above the elbows to the wrists, and from just above the knees to the ankles, the eruption is most profuse; the backs of the hands and fingers and of the feet are less affected, a few lesions, however, being found even beneath the instep in the latter.

The eruption is everywhere papular in character; no vesicles or pustules exist in any locality. In size the lesions usually

vary from pin-head to pea size or larger. Their shape varies greatly, the newer ones being small, round, smooth, and sharply defined, while the larger ones are more irregular. Occasionally a triangular papule is observed, while the larger aggregated patches display every variety of unsymmetrical form,—oblong, oval, round, or squarish. Occasionally they are arranged in rows like beads on a string. The newer papules are raised and slightly rounded, the older and larger ones flatter and almost or quite level with the skin. Some of the oldest seem even a little depressed. Their contour is always sharply defined, and they show no areola; they are only slightly infiltrated. The newer lesions are bright red, the older ones dusky purplish; the latter is the prevailing tint of the eruption viewed as a whole. On pressure, the red color disappears, leaving, except in the most recent lesions, a purplish stain. The eruption is not scaly except about the knees and elbows, where the papules are covered with closely adherent micaceous scales. On the trunk the lesions are more uniform in size than elsewhere, being large pin-head size, and occasionally assuming an annular grouping. Here and there the larger patches are divided into squares by the natural folds of the skin. About the knees, where these are largest, they are as large as a quarter-dollar, and rough upon the surface.

The papules seem to be quite independent of the hairs and sebaceous follicles. Sometimes they are grouped so as to give the impression of an umbilicated patch; the individual papules are, however, not umbilicated. In addition to the primary lesions described there are numerous scratch-marks here and there, indicating a certain degree of itching.

The case, gentlemen, of which you have just heard the notes, is interesting both on account of the rarity of the disease, and because it is so well marked an example. Lichen planus is an affection about which but little was known until Mr. Erasmus Wilson, of London, some ten years since, in an able paper, described a number of cases, and called attention to the prominent features of the disease, and showed wherein it differed from other similar affections with which it had been confounded. Since then, cases have been reported from time to time both abroad and in our own country.

In Philadelphia it is certainly a rare disease, being encountered in my experience only now and then. I can recall but a few cases, and most of these manifested the lesions in a very imperfect, atypic form, so that in some instances the diagnosis could be made only after close attention and study. The patient before us to-day, however, shows the affection in a well-defined manner, which enables me to point out its prominent and characteristic features.

The disease is met with as a rule in adults, and, according to my experience, more particularly in middle-aged persons. The majority of the cases have been women. Most if not all of them have been in a more or less impaired state of general health, as happens in the case we are considering. The eruption may be either a trivial one, consisting of a few scattered lesions, or a severe one, as in the present instance, involving the greater part of the general surface. It manifests predilection for certain localities, and is most frequently found upon the extremities, especially the forearms. It is remarkable for the irregular distribution of the lesions. These are papules, but they vary considerably in different cases as to their size, shape, and general form. In the patient under consideration we observe that they vary in size from a small pin-head to a split pea or larger, and that they are exceedingly irregular in shape, many of them being distinctly angular in outline. The latter feature serves to distinguish the papules of lichen planus from those of other papular diseases. At times the lesions are quite squarish in form. We have seen that many of them are triangular. The papules are smaller here than usual; they vary, however, considerably in size. Ordinarily they are about a line in diameter. The patches of coalesced papules also vary in size; they are very irregular in outline, and may be the size of a small or large coin or as large as a hand. Where the disease is of long standing and spreading, large surfaces may be involved. Their flatness is another conspicuous feature to which I wish to call attention. It will be noticed that the larger papules especially are quite flat on their surfaces. They rise from the sound skin quite perpendicularly, but have distinctly flat summits. In this respect they differ from the papules of eczema, which are generally rounded or acuminated. The flatness of the lesions,

however, in this case is not so marked as I have observed it in other instances.

Another symptom, which is usually present but appears to be wanting here, is a central depression or umbilication of the papules. We ordinarily see this, although it is not unfrequently but slightly indicated, especially where the lesions are small. And I think it is for the reason that the lesions are particularly small that this feature is absent in the present case. More or less scaling also usually takes place from the older papules in the form of a thin, dry, horny, scanty layer of cuticle. When the papules have coalesced and patches have formed, the scaling is somewhat more abundant, but it is seldom a marked symptom. It will, moreover, be noted that the papules are but slightly elevated above the surface of the sound skin. The newer ones are more raised than the older ones, and can be felt distinctly under the finger. The larger and older lesions are flattened, and in many places are scarcely raised above the general surface. Upon close inspection I cannot find that the hair follicles are involved more than other portions of the skin.

The color, also, is a point to which attention must be directed, for it is peculiar. Beginning usually as bright-red lesions, they soon assume a dark-red, purplish, violaceous hue, which in time becomes more or less brownish. The color is less bright than that seen in papular eczema, and, on the other hand, bluer and less coppery than that met with in syphilitic papules. And it is with these two diseases that one is likely to confound lichen planus. As the papules disappear they are succeeded by marked pigment deposit, which appears in the form of brownish or more or less dark bluish-red spots. These pigmentary changes are always striking, and in the case before us we see that they are not wanting. They are persistent, fading away slowly, only in the course of months. The itching in lichen planus varies greatly; in some cases it is entirely absent, while in others it constitutes a prominent symptom. The more rapidly the lesions show themselves, and the more acute the attack, the more severe in all probability will the itching be.

The cases which I have seen in Philadelphia have all been amenable to treatment, although the improvement has usually been slow. In severe cases the experience of other observers shows that the disease can be a very obstinate one, yielding only after a long-continued treatment.

The remedies I would suggest in the present case are iron and arsenic in small doses, together with cod-liver oil; for it is apparent from the general state of the patient that remedies of this kind are demanded. The patient's general condition is far below the average, and, according to her statement, has during the past three months been tending this way rather than to a better state. Arsenic has been found to be our best remedy for lichen planus, but I should hesitate to order it indiscriminately in every case. I should indeed prefer to treat this disease on the principles of general medicine, just as I should any grave case of papular eczema.

Nothing has been said concerning the relationship of lichen planus to lichen ruber. Latterly, the opinion of dermatologists of all countries inclines to the view that lichen ruber as described by Hebra, is but an advanced form of lichen planus. Here the papules have coalesced and have formed solid patches of infiltration, covered with more or less scale. The disease when it has arrived at this stage is often a serious and rebellious one. Lichen ruber as seen in the Vienna clinic is, up to the present time, unknown in our skin clinics in Philadelphia; consequently the subject need not at present occupy our attention. Prof. White, of Boston, has lately reported in the *New York Hospital Gazette* a well-defined example of the lichen ruber of Hebra, which occurred in his practice. The patient, a woman, made a good recovery under arsenic.

ORIGINAL COMMUNICATIONS.

THE PHYSIOLOGICAL ACTION OF NAPELLINA AND ACONITIA.*

BY J. MONRO MURRAY, A.M., M.D.,
Assistant-Surgeon U.S. Navy.

PART I.

IN the aconite tubers there are two principles: one is mainly narcotic, and agrees in its action with the aconitia of the Continent, especially with that of Ger-

* This article is an abstract of one of the theses to which the Alumni prize was awarded at the Commencement of the Medical Department of the University of Pennsylvania, 1876.

many; the other is extremely acid, a property possessed by the June aconitia of Morson of London. This acid aconitia has been called napellina by Flückiger, and aconitia by Ludwig. In the species Aconitum napellus there are the alkaloids aconitia and napellina. Wright states that it also contains picraconitia. In Aconitum lycoctonum are found the alkaloids lycoctonia and acolyctine, the latter being identical with napellina. Wright concludes that the aconitin of Aconitum napellus seems to be wholly dissimilar to the crystallizable alkaloid of Aconitum ferox,—pseudaconitin,—and that it is not improbable that lycoctonia and napellina are the products of the action of chemicals on crystallizable aconitin.

NAPELLINA.

Napellina was first announced to the scientific world in 1852 by Hubschmann.* The first experiments on its physiological action were made by Schroff Senior, shortly after its discovery. He used Merk's article, and, from observations on men and rabbits, inferred that its action was not essentially different from that of Geiger's preparation of aconitia. He gave to men doses of .002, .01, and .04 gramme. In the larger doses he found that it produced increased flow of saliva, a sense of warmth in the stomach, borborygmi, heat in the face and scalp, a peculiar feeling of dryness and tingling in the fauces, formications, faintness, and insomnia, with marked slowness of the pulse. In rabbits, after the exhibition of .01 gramme by the mouth, there were chewing movements, long shreds of saliva protruded from the mouth, muscular twitchings, ephemeral fever, and injection of the ears. At first the pupils were irregular, but in the final stage of the poisoning they became markedly dilated. The respiratory movements were slow, and death ensued after the administration of .05 gramme. On post-mortem examination there were found congestions of the mucous membrane of the gastro-intestinal tract and extravasation of blood into the stomach.

The next experimenters were Bucheim and Eisemerger,† who observed that the action of napellina was not essentially different from that of German aconitin. They made numerous experiments on its action upon the muscular system of frogs, using a one per cent. solution of the acetate of napellina. In these investigations they observed that the muscle-curve of napellina was different from that of aconitia as described by Weyland. In their experiments on the general system they noted that after the injection of .0015 gramme of napellina hypodermically, slight paralysis and muscular fibrillary contractions followed. Von Schroff, Jr., has made a large number of valuable contributions to our knowledge of the Ranunculaceæ.‡ He gives a graphic account of the symptoms which occurred in the case of Herr Kreug, to whom was administered .03 gramme of napellina. The taste of the drug was at first bitter, becoming afterwards more astringent, the latter sensation remaining on the tongue for at least a half-hour. The pulse, which prior to the experiment was seventy-two, in twenty minutes was reduced to sixty-eight per minute. He also had severe headache, and shooting pains in the teeth and jaw. After thirty minutes he complained of pain in the top of his head, cold sweats, and nausea; pupils were moderately dilated, and utter exhaustion and incapacity for mental work were experienced. Schroff's experiments on rabbits gave results analogous to those observed in men. He used .04 gramme of the acetate of napellina either subcutaneously or by the mouth. His experiments on frogs were made with doses of .005, .001, and .002 gramme. The larger doses caused loss of reflex action and motor paralysis.

With this résumé of the principal experiments on the action of napellina, I will give my own observations. The napellina that I used was procured from the Trommsdorf laboratory. It was of a bitter taste, and answered to the tests that Hubschmann has given,—that is, it was a yellowish-white uncrystallizable powder, gave no precipitate with ammonia, and was insoluble in ether and benzole. My experiments were made on dogs, cats, rabbits, frogs, and pigeons. The phenomena which were developed by the alkaloid in mammalia were very constant.

The classic descriptions of the two Schroffs (father and son) have been repeatedly demonstrated to me during my observations on warm-blooded animals. I

* Mittheilungen d. Schweiz. Apotheke Vereins, S. 39.

† Eckhard, Beiträge zur Anatomie und Physiologie, 1870, S. 133.

‡ Beitrag zur Kenntniss des Aconits, Wien, 1871.

have observed that frogs are deprived of voluntary motion by the hypodermic administration of .005 gramme of this alkaloid, and that the rapidity of the ensuing paralysis depended on the amount of the dose. The first muscles affected were those of the abdomen; these primarily exhibited twitchings, which spread in a short time over the whole belly. The frog usually made violent retchings, by which it would sometimes protrude the stomach from the mouth, an action which is peculiar to the batrachian, and which Boehm and Wartmann observed in aconitia-poisoning of the same animals. The paralysis usually appeared in the following sequence: 1, in the muscles of the abdomen; 2, in the respiratory apparatus; 3, in the lower extremities; 4, in the anterior extremities. The decubitus was usually abdominal, although varied by spasmodic attempts to assume an erect posture; the pupils were dilated; complete loss of reflex action; slow respiration, and, finally, complete paralysis of the whole body. The frog's heart was in no instance paralyzed by napellina, although the strength and frequency of the contractions were very much impaired.

In the case of rabbits, cats, and dogs, I noticed, after the injection into the jugular vein of the alkaloid, that a peculiar sucking movement was the first phenomenon that appeared; the respirations were less frequent and the inspirations much deeper; there ensued violent retchings and clonic contractions of the abdominal muscles, then contractions of the general muscular system, and special tonic spasms of individual groups of muscles. The paralysis of the voluntary muscles precedes that of the respiratory apparatus in mammalia, for after the administration of .05 gramme of napellina subcutaneously the animal will live in a semi-paralyzed condition for hours. The pupils are at first sluggish to light, sometimes contracted, but, as a rule, dilated, especially in the last stages of the poisoning. Death is not preceded by any special convulsion.

Dogs seem to have a special immunity from the toxic effects of napellina, whilst, on the other hand, cats succumb very easily to this poison. The post-mortem appearances in warm-blooded animals are very constant. The bladder is very much distended by turbid urine, which, on testing, reveals neither albumen nor sugar.

The lungs and kidneys are intensely congested. As a rule, there is no lesion of the stomach, except congestion of the gastro-enteric mucous membrane. The heart is always found in a state of extreme diastole, which is so marked that it is difficult to lift the pericardium from the enclosed viscus. The right side of the heart is full of dark, venous blood, which shows little tendency to coagulate; the general venous system is engorged. The contractility of the striated muscles is preserved. The temperature taken per rectum is generally reduced 3.5° C. I have in all my experiments on warm-blooded animals injected the poison into the jugular or some other large vein, except in a few experiments which were made on the general action of the drug.

I may here mention that it takes six or twelve times the dose of the poison to produce the same effect hypodermically that it does when introduced by a vein. The cause of this is partly due to the retardation of the circulation, especially in the capillary system, and partly from the well-recognized fact that the amount of the poison in the blood-vessels is only the difference between the amount absorbed and excreted in a given period of time; so that, if the absorption is slow and the excretion rapid, the amount of poison at any one time in the circulatory system is small, which is the case when napellina is administered hypodermically; but when the drug is thrown into the vein the blood contains, in a given time, a much larger quantity of the poison, and the symptoms are very quickly developed by a small dose. The experiments on the circulation were made on dogs, cats, and rabbits,—thirty in all,—the majority being on cats.

The external jugular and saphena veins were used for the introduction of the poison, and the carotid usually for the manometer. The solution of napellina used was strictly neutral, and each cubic centimetre contained one centigramme of the drug dissolved in acetic acid.

Experiment I.—Cat; jugular and carotid prepared; tracheotomy; animal on Czermak's rabbit-holder; curare not used.

Time, A.M.	Pulse.	Pressure.	
	46	176	
	Napellina, .01 gramme.		
10.3.15	56	166	
10.3.38	55	140	
10.3.45	52	120	Struggles.
10.4.0	52	94	Respiration nearly suspended.

10.7.51	Artificial respiration.	
10.15.17	Curare injected.	
10.15.43	70	74
	Napellina, .01 gramme.	
10.15.58	68	78
10.16.13	69	84
10.17.8	55	50
10.41.11	56	65
	Napellina, .01 gramme.	
10.41.26	54	65
10.43.38	38	44

This experiment was repeated upon the cat, rabbit, and dog, with precisely similar results.

It is evident that napellina decreases the arterial pressure and materially slows the pulse. In some cases a primary rise of pressure is noted. The diminution of the blood-pressure may be due to slowing of the heart's action, or to the heart propelling less blood, or to dilatation of the capillaries, or to a contraction of the pulmonic capillaries causing an obstruction to the flow of blood, and hence a less flow of blood into the heart, and thence into the arterial system, in a given time. The slowing of the pulse may be due to excitation of the cardio-inhibitory apparatus, or to weakness of the cardio-motor ganglia, or to change in blood-pressure.

To determine in which of these methods napellina acts, the following series of experiments was instituted:

Exp. II.—Small cat; vagi divided; artificial respiration; curare used.

Time, p.m.	Pulse.	Pressure.
	71	166
	Napellina, .01 gramme.	
4.25.15	62	164
4.25.30	67	114
4.25.45	67	79
4.26.0	71	64
4.26.30	60	58
4.26.45	Animal dead.	

A repetition of this experiment gave identical results. The same fall of pulse and pressure occurred as when the vagi are not divided. Hence it may be inferred that central irritation of the cardio-inhibitory apparatus is not the fault of the slowing of the heart.

Napellina, however, paralyzes the vagi. To demonstrate the irritability of the vagus at different times, and to show its final paralysis, the weakest current from a Dubois-Reymond's induction apparatus that will slow the heart is ascertained, the current being carried to the nerve by Ludwig's electrodes.

Exp. III.—Cat; curare; artificial respiration; right vagus exposed on a silk ligature.

Time, p.m.	Pulse.	Pressure.	
	83	90	
	Napellina, .01 gramme.		
4.47.0			
4.45.15	78	110	
4.47.45	79	100	
4.48.0	74	91	
4.49.0	78	62	
4.50.52	76	54	Vagus irritated 5 seconds.
4.51.7	75	45	
4.51.57	63	67	
4.54.24	78	49	Vagus irritated 20 seconds.
	Secondary coil at 10 millimetres.		
4.55.15	74	43	
5.7.30	73	40	Vagus irritated for 7 seconds.
	Coil at 0.		
5.7.45	70	38	

As is seen, the irritations of the trunks of the vagus at last become nearly powerless to reduce the heart-beat, even with the strongest currents.

Exp. IV.—Rabbit; left vagus prepared; Middledorpff's needle in the third intercostal space, showing the pulsations of the heart.

Time.	
9.15.15	Dubois' coil at 7 stops the heart.
	Napellina, .01 gramme.
9.18.15	Artificial respiration used.
9.20.00	Dubois' coil at 0 slows the heart.
9.20.45	Dubois' coil at 0 does not slow the heart.

Exp. V.—Cat; curare; artificial respiration; atropine; vagi paralyzed as tested by strong currents.

Time, p.m.	Pulse.	Pressure.
	48	90
	Napellina, .01 gramme.	
12.56.15	53	91
12.56.30	50	86
12.58.0	45	85
12.59.45	46	82
1.4.15	47	74
1.4.45	47	70
	Napellina, .005 gramme.	
1.5.0	47	68
1.5.15	44	64
1.6.15	44	33
1.11.0	25	48
1.23.45	58	30
	Delirium cordis observed here very markedly.	

Exp. VI.—Rabbit; curare; artificial respiration; nicotine; vagi paralyzed.

Time.	Pulse.	Pressure.
	67	103
	Napellina, .01 gramme.	
11.15.45	68	104
11.16.0	61	102
11.17.0	54	99

Time.	Pulse.	Pressure.
11.18.25	50	87
11.18.40	42	83
11.19.27	40	65

It is evident from these experiments that the fall of pulse and pressure produced by napellina are not due to excitation of the cardio-inhibitory apparatus. To study the action of the poison on the heart itself it is necessary to separate that organ from its connections with the brain. To do this the vagi, depressors, and sympathetics are divided. The influence of the accelerators and the chief vaso-motor centre is abrogated by section of the spinal cord below the medulla, between the occiput and the atlas.

Exp. VII.—Cat; cord cut between occiput and atlas; artificial respiration; hemorrhage arrested by bovista; post-mortem showed complete section of cord.

Time.	Pulse.	Pressure.	
	65	50	
	Napellina, .01 gramme.		
10.35.0	67	51	
10.35.15	69	54	
10.35.30	66	52	
10.36.0	60	51	
10.37.0	50	43	
10.38.0	40	25	

The repetition of this experiment gave exactly similar results, clearly demonstrating that the cause of the slowing of the pulse-rate is situated in the heart itself.

Action on the Vaso-Motor Centre.—The blood-pressure is regulated by the frequency of the cardiac contractions and the size of the capillaries. The governing vaso-motor centre in the brain may be irritated, either directly or indirectly, through a sensory nerve. Recognizing that lethal doses of this drug paralyze the sensory apparatus, I have made use of direct irritation by Ludwig's electrodes, which were screwed into the occiput and atlas. The sciatic nerve was also so prepared that by rolling the cradle of Pohl's commutator an induced current could be sent to the sciatic nerve and to the main vaso-motor centre at will.

Exp. VIII.—Cat; vagi divided; curare; artificial respiration; sciatic nerve prepared; Ludwig's gimlet electrodes screwed into atlas and occiput.

Time, p.m.	Pulse.	Pressure.	
	56	88	
	Napellina, .005 gramme.		
5.25.15	43	80	
5.25.30	45	84	
5.26.0	49	60	
5.27.30	37	74	
	Sciatic nerve irritated 10 millimetres 5 seconds.		
5.33.23	39	45	
5.45.44	56	46	Centre irritated for 11 seconds.
5.49.05	60	46	

Exp. IX.—Rabbit; vagi prepared and divided; artificial respiration; sciatic prepared; Ludwig's electrodes in atlas and occiput.

Time.	Pulse.	Pressure.	
	60	71	
	Napellina, .01 gramme.		
2.45.15	60	67	
2.45.30	59	65	
2.45.45	57	61	
2.46.20	49	51	
2.46.45	35	49	Sciatic nerve irritated 5 seconds at 0.
2.47.0	33	89	
2.48.45	35	37	Sciatic nerve irritated at 0 for 2 seconds.
2.49.0	33	32	
2.49.30	35	29	
2.50.30	45	21	Vaso-motor centre at 0 irritated 15 secs.
2.51.45	32	19	

It is observed from these experiments that the centre is paralyzed both to indirect and to direct irritation. Boehm and Wartmann have observed a similar effect from aconitin.

I have also made a few experiments in regard to the antagonism between napellina and digitalis on the hearts of rabbits and cats. I used infusion of digitalis.

I found that ten times the usual fatal dose of napellina was necessary after the administration of digitalis to cause death. It was also shown by experiments with the manometer that after the administration of digitalis enormous doses of napellina were unable to arrest the heart in diastole. I also observed in twenty experiments that when the heart of a frog was immersed in a solution of napellina (1 c.c. = .01 gramme) the viscus was nearly paralyzed. If now it was placed in the infusion of digitalis, it commenced to beat. So that in napellina-poisoning digitalis is the antidote *par excellence*. The only instances of the employment of digitalis as the antidote in cases of aconite-poisoning in men which I am able to find are rather wanting in complete history. The first case was where,

after the ingestion of an ounce of Fleming's tincture of the root, twenty minims of the digitalis tincture produced a recovery. The second case was that of a druggist, who was temporarily relieved by the administration of the tincture of digitalis. The antagonistic power of digitalis to aconitia was observed by Boehm and Wartmann. Fothergill also speaks of it.

The fall of pulse and pressure produced by napellina has its origin primarily in the heart itself, for the vaso-motor centre at the first stadium of the poisoning is not affected, although it becomes an important element in the last stadium. It is also obvious that the fall of the pulse is due to an increasing paralyzing effect of the drug on the cardiac ganglia, from the invariable paralysis of the heart in warm-blooded animals. Now, in my experiments on the striated muscles it was clearly demonstrated that the tissue is little if at all affected: hence it must be concluded by analogy that the muscular tissue of the heart is not affected, but that its nervous apparatus is. Napellina affects the heart-beat and arterial tension by an action on the nervous system of the heart, excepting the action of the drug in the last stages on the vaso-motor centre. The quæstio vexata is how to explain the paroxysmal variations of pulse and pressure which are common to napellina, aconitia, and lycoctonia. The action of the latter has been investigated by Ott. Various attempts have been made to discover the proximate cause. Heidenhain concludes that there is first an excitation of the cardio-inhibitory ganglia, and then a stimulation of the cardio-motor, and thus, as they alternate, arhythmia is produced. Boehm and Wartmann, in experimenting with aconitia, referred the delirium cordis to the cardio-inhibitory apparatus. Mr. Lewin attempts to explain the want of rhythm by supposing that there is an unequal division of the poison in the blood, and that by its action taking place at different times and in unequal strength upon the various intra-cardiac ganglia it produces the arhythmia. Now, it has been shown from the researches of Hyâtt that the frog's heart has no blood-vessels, and, as the same arhythmia occurs in the heart of that animal as in that of warm-blooded animals, it must be inferred that the vascular system has no rôle to play in the delirium cordis. Neither can the theory of Heidenhain be accepted, because in the poisoning of napellina there is a constantly falling pressure, and the element of high pressure is wanting to produce cardio-inhibitory excitation. When the delirium of the heart arises, atropia has no power to restore that viscus to its original rhythm. Köhler, in speaking of the arhythmical movements of the heart, and his very able experiments with saponine and other drugs, thinks that the arhythmia may be due to incomplete systole, that is, that the ventricle may be a quarter or half full when it contracts. This incompleteness may be due to exhaustion of the cardio-motor centres, and when they have become rested in diastole they cause the heart to contract with full force and raise the blood-pressure. Whilst this explanation may be true, it seems to us that the researches of Professor Bowditch, of Harvard, made at Leipsic, on the peculiar irritability of the heart, are destined to solve the problem. Luciani, Kronecker, and Dr. Sterling, of Edinburgh,* have continued his work, and discovered facts which give us a clue to the right explanation.

(To be continued.)

SPONTANEOUS CURE OF GOITRE, FOLLOWING AN ATTACK OF TYPHOID FEVER.

BY LOUIS STARR, M.D.,
Physician to the Episcopal Hospital.

ELIZABETH ——, æt. 36 years, was admitted to the Episcopal Hospital on October 16, 1877, suffering with the initial symptoms of typhoid fever and affected with a goitre of considerable size. She was born in Baden, whence she emigrated to Philadelphia in 1868. While in her native country her occupation was that of a field-laborer; but since coming to this city she had been engaged chiefly in housework. No history of hereditary disease could be elicited, and she affirmed that the locality of her birth and residence in Baden was healthy, and that none of the members of her family nor any of her neighbors were goitrous. The goitre made its appearance in 1867, two weeks after her first labor, which was prolonged and difficult, and was at first noticeable merely as a slight enlargement of the right side of the neck. It gave rise to no inconvenience and increased but little in size until 1874, when she had another difficult labor. After this the growth was more rapid, and she began to experience some dyspnœa, with slight, dry cough and tickling in the throat; these symptoms were

* Journal of Anatomy and Physiology, May, 1875.

most marked after any exposure to wet and cold: at such times, too, there were tensive pains in the tumor and a temporary increase in its dimensions. When admitted to the hospital, the goitre was perfectly symmetrical in shape, the whole of the thyroid body being involved; it was quite large, partly concealing the larynx, overlapping the upper portion of the sternum, and extending, in the median line, more than three inches from the surface of the neck; to the touch it felt firm and somewhat elastic, and the skin covering it was normal in color. The heart was healthy, and there was no protrusion of the eyeballs. Very little notice, however, was taken of the goitre at the time, the attention being fixed upon and the treatment directed solely to the typhoid fever. The latter proved to be mild in type, and progressed favorably until November 2, eighteen days after admission, when there was a moderate accession of fever, followed by the symptoms of inflammation of the right parotid gland. This terminated by resolution, the swelling, redness, and pain entirely disappearing by November 12, and one week later the patient was able to leave her bed. On November 22, complaints were made of throbbing pain in the goitre, and there was tenderness on pressure, especially at the centre of the tumor, where there was a circular spot of redness and slight swelling, an inch in diameter. The pain continued, and the local redness and swelling extended from day to day, indicating the formation of an abscess; at the same time there was a decided decrease in the size of the growth, the diminution being more perceptible at the sides than in the median line. On November 30, the area of redness measured nearly two inches in diameter, fluctuation could be readily detected, and the bronchocele had diminished one-third in size, lost its semicircular outline, and become conical in shape, the apex of the cone being formed by the centre of the abscess. The abscess broke on December 8, discharging about one ounce of healthy pus, and the pain disappeared rapidly. For the next two weeks there was a free discharge of purulent matter, and a slow but steady decrease in the size of the tumor. The patient left the hospital on December 27. When she returned to report, January 5, 1878, there was an ulcer as large as a nickel penny at the point where the abscess had ruptured, the redness had almost disappeared, the discharge was less abundant and more serous in character, and the goitre was reduced to a mass three inches in transverse and a little more than an inch in vertical and antero-posterior diameters, situated over the trachea and causing no inconvenience; the sides of the neck were natural in appearance. On February 18, when seen for the last time, the ulcer had entirely healed, the newly-formed skin being dusky red in color, and all that remained of the tumor was a trifling induration of the tissue, situated immediately beneath the position of former ulceration. The patient's general condition was satisfactory in every respect.

Remarks.—Bearing in mind the accepted etiology of goitre, the well-known liability of patients to err in relation to the healthfulness of the localities in which they reside, and the tendency of those who are uneducated to attribute their ailments to other marked events of their lives, it seems more rational to regard the association of goitre with difficult labor, in the present case, as a coincidence, than to look upon it in the light of cause and effect; though it sometimes happens that enlargement of the thyroid body occurs during pregnancy quite independently of the existence of the conditions usually mentioned as favorable to the production of goitre. The formation of an abscess in the tumor after the resolution of the parotids must be considered as an accidental sequel of the typhoid fever, although it may have been indirectly dependent upon the latter.

The most interesting feature of the case was the gradual decrease in size and the subsequent disappearance of the bronchocele, caused by suppuration taking place in its substance, the method of cure resembling that which is occasionally established artifically by the introduction of setons.

A CASE OF PECULIAR POISONING BY CYANIDE OF POTASSIUM.

BY GEO. F. SOUWERS, M.D.

I WAS called, March 27, 1878, to see J. P., photographer, and elicited the following history. For some days he has been working with potassium cyanidum, both in substance and in solution, the drug being used in the course of his business. On the previous Monday he commenced to complain of soreness of the scalp over both *parietal regions;* heaviness of head; sleeplessness; pain in the lumbar region; some muttering delirium (which afterwards became more active, the patient evincing a desire to walk around); ringing in the ears; swelling of the *upper* eyelids; loss of appetite; some nausea; bowels obstinately constipated, although when unexposed to the influences of the cyanide he has from two or four evacuations per day; on waking from *cat*-naps has a chill, which in fact awakes him before he can get soundly asleep; this is followed by a *very slight sweat;* he is short of breath during these attacks from the cyanide. On examination, the pulse runs about 78, slow and full; the skin is cool;

pressure on the top of the head and back of neck is painful; sensibility of skin over body is fair. On examining the eye the pupil is found, in a great degree, unresponsive to light; the face is dull, slightly flushed, and expressionless,—the tendency being to close the eyes; the tongue has a peculiar darkish background, seen through the heavy white coating; the teeth, gums, and lips covered with sordes; the breath extremely fetid; the lungs and heart in good condition; no cough; abdomen tender on pressure; no spots on the abdomen or lateral aspect of the body; he has not been exposed to miasma, nor to the effects of bad drainage; is of temperate habit. The diagnosis arrived at was congestion of the brain, induced probably by exposure to the cyanide, with probably some constitutional effects from the drug,—the system being in a general state of malaise. I arrived at this conclusion from the fact that he is entirely free from these spells except when exposed to the influences of the drug in question; it would seem also to produce the obstinate constipation: when unexposed there is no tendency to constipation. On the contrary, according to the patient's statement, verified by that of the family, there is unusual looseness of the bowels, from two to four passages per diem being the rule. The patient, previous to my being called in, had taken a dose of "mandrake pills:" these, however, failed to produce the slightest action. The treatment pursued consisted in a blister to the posterior cervical region, for its revulsive effect; for the sleeplessness a mixture of chloral, bromide of potassium, and morphia was given. For the constipation a pill containing quinia, croton oil, strychnia, and podophyllin was ordered every six hours until effective. Diet to be light and of easy digestion.

March 28.—The head is clear; less pain in the head; eye clearer and more responsive to light; still has ringing in the ears; tongue is slightly cleaner; tenderness of the abdomen not so marked; pulse 70–72, full and slow; skin cool; urine heavy with brickdust deposits; on testing it no albumen is found. The patient slept some during the night, but was somewhat delirious, evincing a tendency to walk around, to mutter, etc. Although the bowels opened slightly, giving passage to a very scant amount of fæces, of an extremely dark-green color, the constipation may be still said to exist, and for this are ordered pills similar to but stronger than those previously given,—one to be taken during the afternoon, the other, if the bowels have not opened, at bedtime.

March 30.—To-day the patient is much better; the brain is clear, and the head free from pain or soreness; eye clear and bright; no ringing in the ears; no delirium; he has slept some this morning; the tongue is still heavily coated, but is of better color; appetite fair; skin warmer; pulse about normal. The pill, although ordered to be given during the afternoon, was not administered till 7 P.M. In half an hour profuse catharsis set in, which lasted off and on till about 8 A.M., when it ceased gradually. He was seen at 10 A.M., and nothing was ordered but quiet, low diet, and a slight amount of brandy. No opium was given, as the patient is of gross habit, and I deemed it better to leave the bowels soluble as possible, in order not to risk an apoplectic seizure, which seemed to be threatened early in the case. I may add that my patient has informed me that he has a friend in the same business as himself who is likewise liable to these seizures after working with the cyanide. If any gentleman can make suggestions, I should like to have them.

TRANSLATIONS.

Diarrhœa of Infants.—Dr. René Blache (*Bull. Gén. de Thérap.*, 1878, p. 89; from *Jour. de Thérap.*) urges that whenever diarrhœa occurs in young infants it should be checked immediately and not allowed to make headway. The medicine he employs is the same in every case, though modified somewhat according to circumstances. In order to prepare for this, diminution of the ordinary diet is directed, and appropriate enemata after each passage, with cataplasms to the abdomen. Then every morning a small teaspoonful of an emulsion made of equal parts ol. ricini and syr. acaciæ is given, and repeated every day for three, four, or five days. For infants under six months, ℈j ol. ricini is enough; from six months to two years, ʒss to ʒj. If after a day or two the stools improve, the dose is maintained, but if they are still fetid and glairy, an equal dose may be given in the evening as well as in the morning. When the passages are very frequent, one to three drops of laudanum may be added in the course of twenty-four hours. M. Blache thinks enemata very important. A large enema of infusion of chamomile may be given at the outset, followed by a smaller one of starch, twenty minutes later. X.

Iodhydric Ether (*Le Progrès Médical*, 1878, p. 139).—This combination of iodine and alcohol, sometimes also called iodide of ethyl, has recently been suggested as a means of administering iodine internally. It is made as follows. Ten parts of red phosphorus, eighty parts of iodine, and one hundred and twenty parts of 95° alcohol are taken. The alcohol and phos-

phorus are placed in a tubulated retort communicating directly with a long-necked receiver; the retort is placed on a sand bath, one-half of the iodine is added, and, when the heat and vapor thereby generated have passed off, the second half. The mixture is now gently heated, and the iodhydric ether passes over into the receiver. It is usually colored yellow, and must be rectified by a second distillation, when it is a colorless fluid of considerable density, 1.97 French scale, slightly volatile or inflammable, and boiling at 149°. It is thus quite different from ordinary ether. It is very easily decomposed, and is incompatible with a great number of substances. It is very rich in iodine, one gramme containing 80 centigrammes of this element. It may be administered in a dilute alcoholic liquid or in capsules. It has been recommended also as an inhalation in phthisis. X.

Bromhydric Acid in Tinnitus Aurium from Quinine, etc.—This acid affords an excellent means of stopping that ringing of the ears which is often such a disagreeable accompaniment to the ingestion of quinine. It also exercises a not less favorable influence upon other noises, particularly those of a pulsatile character, which give, for example, the sensation of hammering. If vertigo is present, the bromhydric acid neutralizes that also. The dose is fifteen drops in a little water every fifteen minutes. —*Presse Méd.-Chir. de Pesth; Bull. Gén. de Thérap.*, 1878, p. 93. X.

Esmarch's Bandage in the Treatment of Aneurism.—Dr. Waquet (*Thèse de Paris*, 1876, No. 380) concludes as follows: 1. Elastic compression has been employed in external aneurisms seven times, with six successes, of which five were in the popliteal and one in the femoral artery. It could be employed with the same advantage on aneurisms of other members. 2. The mean period of its application has been one hour. 3. When it was discontinued, mechanical or digital compression replaced it, in order to prevent the blood-current from acting too violently upon the recently-formed clot. 4. No accident imputable to compression has occurred. 5. Up to the present time this method of treating external aneurisms has given the best results.—*Bull. Gén. de Thérap.*, 1878, p. 95. X.

Treatment of Urethral Neuropathy. —Dr. Bron (*Jour. des Sci. Méd.*, 1878, p. 95) thus designates those vague symptoms complained of by patients who have suffered from gonorrhœa after all discharge has ceased. These are lassitude in the loins, weight in the hypogastric region, painful and strange sensations in the urethra, extension of the malaise to the digestive organs, etc. Of course all these symptoms are not found associated in a single individual, but they are found isolated or several together. Instead of the varied medication heretofore recommended in these cases, Dr. Bron urges the simple employment of the sound as being quite sufficient. A soft bougie of small size is introduced every second day and left in place for a few moments. At each sitting the size of the instrument is slightly increased. At the end of a very short series of sittings the most rebellious neuropathies sometimes disappear, as if by magic, after having resisted the most varied medication previously. X.

Arsenic and its Preparations in the Treatment of Skin Diseases.—Molinari, in an article on this subject (*Gaz. Med. Ital.-Lomb.*, March, 1877; *Jour. des Sci. Méd.*, 1878, p. 100), concludes as follows: 1. Arsenical preparations should be administered at first in small doses, which are to be increased gradually, their effect being carefully watched. At the first sign of disturbance, as loss of appetite, pain in stomach, dryness of the mouth, swelling of the eyes or nose, or difficulty in urination, the medicine should be suspended, but renewed again when these disappear. 2. A saline purgative, as sulphate of sodium, should be taken before the beginning of the treatment and at its close. 3. Arsenic should not be given after, but before, meals: it is better tolerated under these circumstances, and is more quickly absorbed. Acids should not be taken by the patient, and alcoholic drinks only rarely. The treatment should last from one month to six weeks. 4. External means, as ointments, etc., should be added to the arsenical treatment. 5. In eczematous affections, where the kidneys are involved, some diuretic, as the acetate of potassium, may be added to the arsenic, but not substituted for it. X.

The *Medical Times and Gazette* says that Professor Sée, of Paris, has found a relief from asthma in inhalations of the iodide of ethyl.—*Boston Med. and Surg. Jour.*

PHILADELPHIA

MEDICAL TIMES.

PHILADELPHIA, APRIL 27, 1878.

EDITORIAL.

THE NEW HOSPITAL FOR THE INSANE.

IN the article under this head in our last issue we charged the Board of Public Charities with a flagrant betrayal of trust in that it did not use the power bestowed upon it by the act that created the hospital to prevent the dismemberment of the plan first adopted by the Commission. The *Bulletin*, in a notice of the article, complains that the charge is unfounded, because the Board, it says, "are to give their consent to any essential change affecting the general character of the plans." The language of the act is, "no changes shall be made in the same (plan) so as to materially affect its general character without the consent of the Governor and the Board of Public Charities." We are perfectly willing to leave it to the reader to decide whether leaving out the administration building, the section for excited women, the workshops, and the roofs of the connecting corridors is not such a change as materially to affect the general character of the plan. Hamlet with Hamlet left out, and yet no change!

The *Bulletin* also says, with an air of superior shrewdness, that there are other mistakes besides those we mentioned, which we have not found out. We admit the fact, but protest against the implication of stupidity or lack of knowledge. To have discussed all the mistakes made by the Commission and the Board of Public Charities would have swelled our article beyond all reasonable proportions. We think we exposed enough to warrant our statement that this new beneficent enterprise had been brought to a "lame and impotent conclusion."

Dr. Morton, in his communication, supposes that he has convicted us of several errors; but we cannot see that any one of the statements to which he objects—certainly no one of much consequence—is proved to be incorrect. On the contrary, some of them, and those of the most importance, are confirmed by his own admissions. The delinquencies of the Commission he sets forth in a stronger light than we did. In two or three instances he misapprehends entirely the points we made. He speaks of the requirement that the plan should not be changed without the consent of the Board of Public Charities in such a way as to give the impression that we had expressed dissatisfaction with it. Our complaint was that the Board, having this restraining power, did not exercise it, and thus prevent a course that must end in increased cost and an imperfect result. Again, he says we pronounced it "impossible" to build such a hospital at the rate of $800 per patient. If he will look at our article carefully he will see that we did not say this. What we did say was that the cost fixed upon was one of "unprecedented cheapness, and could be accomplished, if at all, only by means of the most honest, careful, and skilful management." Surely Dr. Morton does not doubt the correctness of this assertion. He cannot desire any more fervently than we do that the new hospital should prove a model of cheapness; and it is because the course adopted by the Commission will certainly raise the cost far beyond the appropriation that we entered our protest against it.

In regard to some other points to which the doctor takes exception, we need only say that they are of minor importance, with one exception, and may as well be left to the judgment of the reader. The exception we refer to is the novelty in insane-hospital architecture of placing the different sections at remote distances from one another.

SUBJECT-CATALOGUE OF THE NATIONAL LIBRARY.

THERE is scarcely any subject at present looming up on the professional horizon of the same importance to the world in general with the publication of the subject-catalogue of the National Medical Library. Of the value of the work, of the enormous amount of labor already expended, of the uplift which its publication would give to medical science both in this country and in Europe, it were superfluous to speak at present. The universal verdict has been pronounced too fully, too loudly, and too unanimously to require anything more to be said. The duty of the hour is to watch Congress and to insist upon the making of the necessary appropriations.

In the estimates of the Secretary of the Treasury at the opening of the session of Congress is (p. 160) the item, "Printing and binding catalogue of the library of the Surgeon-General's office, 3000 copies of volumes one and two, including stereotyping, $25,000." This item is now before the Appropriation Committee of the House of Representatives, and appears to be encountering much apathy and some active opposition. The total cost of publication will reach, it is believed, $100,000, to be spread over four years. This seems at first sight a large sum; but when it is compared either with the result to be achieved, or with the resources or the habitual expenditures of the government, it becomes trifling. It is not so much beyond that which an investigating committee will throw away perhaps on a wrong scent. It does not equal the amount frequently piled into a hopelessly ugly mass of stone in a second-rate post-office of a town; indeed, it is scarcely sufficient to pay the difference between some such buildings and equally commodious brick structures. It is not much more than is necessary to raise, equip, and drill a single company of cavalry.

It seems impossible that such men of culture as Mr. Hiester Clymer and Mr. A. H. Smith of this State—to say nothing of distant Representatives—can fail to grasp the situation, and catch at least a glimpse of the real importance of this subject, although it be less tangible than granite and marble, cavalrymen and horses.

EVERY once in a while we are compelled to chronicle the fall of another medical stronghold before the assaults of the women doctors. The last battle-field has been our Obstetrical Society; but the results of the conflict are not yet plainly apparent.

It seems at first sight a little glaring that the female physicians, the necessity for whose existence is the asserted impropriety and indelicacy of male attendance upon the conditions and diseases peculiar to women, should strive to enter as members a society like the Obstetrical, whose end and aim is the perfection of male physicians for such duties,—their membership, if effected, of necessity implying a surrender of all such opinions and a hearty approval of the efforts of the male members to gain a deeper insight into this disputed specialty. Had a desperate effort been made to storm the camp, drive the male intruders off the field, and secure the time-honored Society, its charter, by-laws, and treasury, to themselves, it would have been more consistent. The friends of their admission, believing that the by-laws rendered women ineligible, offered an amendment inserting the word "female," which was, however, defeated. The opponents of their admission then proposed to insert the word "male," so that there could be in future no ambiguity or shadow of doubt; but this again was defeated; and, finally, on the proposal of the name of an eminent female practitioner of this city, she failed to be elected. The state of the case at present seems about this. A majority of the Society are in favor of not making women plainly eligible. A majority are in favor of not making males

alone plainly eligible. A majority are in favor of not admitting a female physician to membership whose ability is unquestioned and whose character is spotless. From the above let some skilful logician deduce the real opinion of the Society. We should say, if it were not rude, that the eminent body was still waiting and watching to see which way the wind blows, although hosts of straws have been driving in one direction for at least ten years.

Dr. Edward Bayard, at a meeting of the Homœopathic Medical Society of New York, March 8, asked for a reconsideration of the resolution concerning the foolishness of homœopathy which had been previously adopted, and of which we took note in the Notes and Queries column of our last issue. Dr. Bayard made a long speech, objecting, *inter alia*, to the resolution because it "goes far to confirm the charge" that "we were the ass in the lion's skin." The resolution was rescinded. The ass, betrayed by his bray, tried to recall it, but only afresh to show what an ass he was.

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

Thursday Evening, January 24, 1878.

The President, Dr. H. Lenox Hodge, in the chair.

Recurrent carcinoma. Presented by Dr. Richard A. Cleemann.

The morbid growth which I exhibit to-night is the third of a series removed at different times from the axilla of the same individual, a lady about 70 years of age, the primary and secondary ones having already been presented before the Society a year ago (January 11, 1877).

The initial one of these growths was first observed, as I stated on the former occasion, as a small "lump" in the axilla, some time during the spring of 1871. Having increased in size, and presenting the gross appearances of *epithelioma*, it was removed by excision, four years subsequently, April 2, 1875. The diagnosis of epithelioma was confirmed by your Committee on Morbid Growths, by which it had been submitted to microscopic survey: my friend Dr. C. B. Nancrede, who made an examination of the base of the tumor, found the elements of *scirrhus*. A tedious convalescence, interrupted by sloughing of the cellular tissue adjacent to a part of the wound, followed; but eventually the patient was restored to a condition of excellent health.

A year after the excision a hard nodule began to show itself near the seat of the primary growth. This second morbid mass was taken away January 3, 1877, and, being submitted, like the first, to your Committee on Morbid Growths, was declared by it to present the characters of "a carcinomatous infiltration of a lymphatic gland, variety *scirrhus*." The convalescence from this operation was somewhat less prolonged than that following the first, and was complicated by an attack of superficial erysipelas, not invading the skin about the wound, but extending over other portions of the surface during a period of more than two weeks. In connection with this process, small collections of pus, healthy in appearance, formed under the edges of the wound, and a swelling of the cellular tissue in the most dependent part of the arm was observed, the latter remaining as an œdematous infiltration of the tissue after the erysipelas had run its course. After this complication, I noted in my case-book that the patient's skin had a waxy aspect, similar to what was formerly described as belonging to the "cancerous cachexia;" but this appearance no longer existed when good health was again established.

In the latter part of August, 1877, the patient, at that time in most excellent general health, became conscious of a new growth situated in the neighborhood from which the others had been removed. She consulted me two months subsequently, when the mass could be felt to be about the size of a small marble: it was situated high up in the axilla, immediately anterior to the scars left by the incisions made for the removal of the former growths. It was hard, of irregular contour, and closely attached to the skin above it. At the same time the cicatricial tissue itself was found to be adherent to the subjacent parts. The patient suffered occasionally from pain in the left arm, and had lately had a tingling sensation extending down the extremity to the little and ring fingers. The swelling before referred to as existing in the arm had never entirely disappeared. This, the third growth, lies before you, having been dissected away on November 17, 1877, since which time it has been preserved in alcohol. It was found to lie directly upon the subscapular artery, not far from its origin in the axillary. So close was it to the subscapular that Dr. Agnew, who performed the ablation, judged it best to throw a ligature about that vessel, fearing that its coats had

been damaged by the knife. The mass now resembles a small cluster of somewhat enlarged lymphatic glands attached to a portion of skin by indurated cellular tissue. Dr. Nancrede, who was good enough to examine it microscopically for me, has found the glandular part to possess the *carcinomatous* features of the immediately preceding growth (*scirrhus*), the skin to be normal, and evidences of inflammatory action in the connective tissue. The wound from this last operation has been healing kindly, with little suppuration, though the loss of tissue in the previous excisions has contributed to a slow contraction of its edges. It is now almost closed, but a short linear ulcer remaining. Save some constitutional disturbance immediately after the operation, the general health on this occasion has not been affected.

But the removal of the growth has not been followed by a disappearance of the occasional pain and tingling in the affected extremity, nor has the œdematous swelling vanished, while the development of a small, crack-like ulcer in a depression of the old cicatrix, the tissue about it being red, shiny, and "cushiony," is additional evidence of the remaining activity of the disease.

The clinical facts with which I have supplemented the brief description of the morbid anatomy of the above case have been introduced because they illustrate so forcibly the pathological question of the local nature of carcinomatous disease. Here is a delicate and aged lady who has suffered for seven long years from cancer, and yet is as strong now in her general health as when the disease first showed itself, seeming indeed to have escaped the full measure of senescence which is wont to accompany that lapse of time. Moreover, the complications in the convalescence from the first two operative procedures, while they brought her for a season to a condition of great prostration, went for nothing in urging on the march of the disease, if they did not positively, in their destruction of neighboring compromised tissue, rather stay its ravages.

The combined presence of epithelioma and scirrhus, with the recurrence of the latter alone, is worthy of notice. Following Virchow and those who believe that the cancer-cells may originate from other than epithelial cells, the pathologist may look upon one suspected irritant as producing here the two forms of carcinoma. Exerting its power on the epithelial layer of the skin, epithelioma was developed, but when it bore upon the connective tissue, scirrhus was the result. The more circumscribed nature of epithelioma made the entire ablation of its tainted cells practicable, and this form of disease did not recur. On the other hand, the infiltration of the elements of scirrhus, spreading more widely, had left some seed behind to bring forth its proper growth.

Dr. LONGSTRETH said, in every case when the metastatic formation of a tumor takes place, either after an operation for the removal of a new growth, or when no surgical interference has been made, the questions must arise, first, Is secondary growth the same, and does it always show the same histological characters, as the primary? and, secondly, What is the dependence, or connection, or relation, of one on the other?

In regard to the first question, it must be answered, certainly in the great majority of cases, in the affirmative. A careful study of microscopic sections from the respective growths shows such correspondence of the cells and their relations, that without doubt the secondary growth is placed in the same class and given the same name as its predecessor. In some cases, however, the similarity is not so close, and there does occur a diversity in respect to the structure of two new growths, which growths give the same reasons for belief that they bear the relation of parent and offspring, that we have in cases where similarity in structure exists. Under these circumstances, a subordinate question arises, whether these new formations do have such relationship, or whether we are dealing with an instance of two distinct varieties of malignancy occurring in the same patient, the two growths not, however, interdependent, but each growth separately developed in a distinct position and at different times. The possibility, nay, the certainty, of such distinct development must be admitted, although common experience turns our attention almost wholly to the question of metastasis.

It is probable, without, perhaps, entire definiteness of statement being possible in the matter, that a consideration of the different grounds or mother-beds in which the two growths respectively have their origin may help us to explain the variation in appearance presented by tumors metastatically related to each other and undoubtedly belonging to the same class. Such variations in appearance may be illustrated—although the illustration does not prove the point in question—by the microscopic results derived from the examination of newly-developed granulation-tissue, and of the same tissue in a state of luxuriant growth; or from what is seen in syphilitic growth before and after ulceration of the covering skin; or, to take an instance more nearly allied to the question in hand, the appearance of a newly-developed and growing sarcoma, and the condition presented by tumors of this class at a late stage of their growth. As a further illustration of the differences existing between the primary and the secondary metastatic growths, he would cite a case studied by Prof. Brodowski and reported in *Virchow's Archiv*, Bd. lxvii., in which was found melanotic sarcoma of the eye, with apparently carcinomatous tumors of the liver and kidney.

Besides the differences due to the dissimilarity of tissue in which the primary and secondary growths have their seat, for example, a tumor of the brain secondary to one of the mammary glands, the variations in appearance may, and undoubtedly do, result from mere difference in age and rapidity of growth. He did not think that scientific oncology is capable at the present time of furnishing us with sufficient data for the determination of these essential points.

The second question, viz., the dependence or connection of the metastatic offspring from the primary growth, leads to the consideration of the means by which this is effected. The two possible channels of communication are the blood- and lymph-circulations. Although these two means have long been pointed out, yet it is only within quite recent times that completely developed tumor-cells have been shown actually in transport by these roads, and actually free within the calibres of both these vessels. Let us leave to one side, for the present, the consideration of that as yet indefinite idea of the conveyance of germs by these means, which germs may or may not develop as a distinct growth. The separation of these two ideas is the separation of the question of local disease and of cachexia in malignant tumors. Accepting now the first of these two theories as the one definitely proved, viz., that, starting with the local growth of a tumor, we may have metastasis, or the development of secondary growths in other parts, through the bodily transport, in a developed form, of parts of such growth, the question arises, In what forms and at what parts does such secondary development occur?

The now common knowledge, backed by many careful observations, of these travelling masses of tumor in both the lymph- and the blood-track, leads us to study the development of metastatic growths in both of these situations. The possibility of the passage of cells through the walls of the vessels within the tumor, vascular walls that are no longer normal, seems to be acknowledged; the passage of the cell-elements into the lymph-vessels, along with the fluids or juices of the tumor, is well established. The masses, which can be called tumor-emboli, are carried along the blood-current until they find a suitable resting-place. This seat may be determined by their attachment or adhesion to the wall of a venous trunk, or by what is more likely to happen, their passage through a capillary network, which by its size filters out the little masses. The position, therefore, of their future growth depends somewhat on the relative disproportion in the size of the embolus and of the capillary vessel. Similar emboli are found in the lymph-capillaries.

The most frequent of metastases, and the one with which we are the most familiar, is the implanting of the tumor-growth on a neighboring lymphatic gland. Here the infection of the gland likewise takes place through the direct transport of the cell-elements of the new growth. Here, too, sometimes, without doubt, we see changes effected in the typical histological appearances of the tumor-cells as a result of their implantation on glandular tissue.

In addition to these two modes of metastasis, in both of which the material transported for the growth of secondary formation is the developed cell, separated as such from the primary growth, there is at least another mode, which is a possible one, if not probable, by which the dissemination of diseased tissue-elements can be effected. Let us look at the circumstances under which the primary growth has its beginning. As the initial step there occurs at the seat of the disease a mal-growth of the nuclear bodies from which are derived the heteroplastic cells of the new formation, and which become the nuclei of the tumor-cells. The nuclear bodies are either the newly-deposited elements or the derivatives of cell-division of the tissue previously existing. In either case, according to theory, they originally existed as normal (white) corpuscular elements of the blood, and which, under local morbid influence, have had their developmental capacity so far altered that, instead of presenting the "fixed appearance" of health, we see, for example, an epithelial element becoming a carcinoma, or a connective-tissue element a sarcoma. Now, these normal blood-corpuscular elements possess the formative power of growing, in the one case, as supposed, epithelium, in the other case, connective tissue, but under local morbid influence develop into heteroplastic growths. We see, now, either one of two facts, either that only such corpuscular blood-elements find their way into a particular tissue, or that only such of these wandering bodies develop in the part with which they are in correspondence; all other wandering elements which may chance to find their way into, let us say, connective tissue, but which have not the power of developing into that tissue, are carried back by the lymph-vessels to the general circulation.

If we have, then, normal corpuscular elements which only find development in tissues to which they are histogenetically allied, the same rule of development must hold for the abnormal corpuscular elements, viz., the nuclei which are capable of growing tumor-cells. The abnormal elements, the undeveloped cells, the nuclei, which exist in abundance in the morbid growth, are free to move, and are liable to be, and are constantly, taken up by lymphatic agency, to be reconveyed into the general circulation. Such nuclear bodies can exist in the blood, and, from their similarity to the white blood-corpuscle, remain undetected. They must now be looked on as derivatives of a particular tissue, and as bodies

having impressed on them a morbid formative power; they too, like their prototypes the normal elements, seek their place of development in the tissue to which they are allied histogenetically.

This process, which Dr. L. had attempted to characterize, is, he wished distinctly to state again, something very different from that which has been alluded to in embolic metastasis of tumor-cells, and from the infection—the word is used without prejudice of meaning—of a neighboring lymphatic gland. The value of such an hypothesis for metastasis is to be found in cases where secondary formations occur, either in parts void of tissue histogenetically related to the new formation, or when the embolic method can be excluded from participation in the process. As an instance of the first may be cited an enchondroma of the lung, secondary to such a tumor of the testicle. An instance of the second would be with difficulty found, and with greater difficulty proved. This hypothesis is something very different from embolism: the one is growth within the tissues of an organ and in a particular tissue, the latter is growth at a fortuitous point within a blood-vessel.

According to the terms of the hypothesis, the metastatic formation of an epithelioid growth would take place in an epithelial structure: thus, an epithelial growth of the stomach, when it involves the liver in secondary formations of the same malignant character, chooses the liver-cells—cells which, if they are not truly epithelial in character, bear at least a close relationship to such tissue—as their point of development, rather than the connective tissue of the portal canals, etc. (excluding, of course, cases of metastasis between the two organs by embolism); whereas in sarcomata the point of development would be the connective-tissue parts of the organ. In Brodowski's case, already cited, the author speaks of the knots in the liver, metastatically related to the melanotic sarcoma of the eye, presenting the structure of so-called medullary carcinoma. (See *loc. cit.*, Pl. vi. Fig. 2.) In Fig. 3, Pl. vi., the drawing represents a connective-tissue tract bordered by areas of liver-cells; the connective tissue shows in its midst, or is replaced by, the melanotic sarcomatous formation, whilst the liver-cells, collected in clumps or masses surrounded by a very delicate stroma, exhibit the changes which the author considers as carcinomatous. The liver-cells undoubtedly show alterations, but he doubted if they represent or are to be considered as the part typical of the new formation in the organ; he doubted, too, if the delicate connective tissue enclosing them is to be regarded as a stroma of a glandular carcinoma. Much more likely is it that the stroma is but the extension inwards between the acini of the connective tissue of the portal canals, either as a hyperplasia or as a malignant new formation, connected with the melanotic sarcoma distinctly developed in those canals. The condition of the liver-cells differs but little from, and is parallel to, that seen in cirrhosis of the organ. The relative changes of the two tissues—on the one hand the liver-cells first showing alterations from proximity to the irritative process present in the adjacent tissue, but finally being destroyed by the overgrowth and contraction of such tissue, and on the other hand the connective tissue becoming hyperplastic and tending constantly to invade the areas of the liver acini—are the same in that disease as we see here represented in the malignant growth. This explanation of the appearances of the liver in Brodowski's case—and the same is true of the kidney changes—affords a confirmation of this hypothesis.

Dr. L. mentioned that recurrence of tumors, in contradistinction to metastasis, has the same significance as the extension of the growth in its original formation and enlargement, and takes place by peripheral infiltration; although, in the removal of a tumor by surgical operation, the incision may be carried through apparently normal tissue, yet if recurrence takes place there is proof either that some of the surrounding part was involved, though invisibly, or that the morbid formative character was so impressed on the cells that they had become incapable of development in the normal type.

Recurrent epithelioma of neck. Presented by Dr. C. B. NANCREDE.

Dr. NANCREDE said that he expected to show a specimen of such rarity as had never been presented during the more than twenty years' existence of this Society. As far as he knew, there were but three other such upon record, related by Sir James Paget in his classical work on Surgical Pathology, the accounts of which had been read at the previous meeting but one. Only two of these had been subjected to such thorough scrutiny as to leave no room for doubt. Unfortunately, like so many other "unique cases" and "original discoveries," this one, upon more rigid examination, had caused the "châteaux en Espagne" to vanish into thin air, and had left only an exceedingly commonplace specimen. Dr. Nancrede said that he trusted, however, this mistake would prove, as is so often the case, more instructive than any number of rare specimens. It may serve as an admirable commentary upon the remarks made in relation to the case just presented by Dr. Cleemann, and the one adverted to by Dr. Tyson. The examination of these specimens by competent gentlemen apparently resulted in most diverse opinions as to their nature. In Dr. Cleemann's case, the Committee on Morbid Growths examined only the skin, and found epithelioma, a fact that it gave Dr. Nancrede

great pleasure to corroborate by his own examination of their sections. But upon examination of the deeper tissues, Dr. N. found true carcinoma. Dr. Tyson examines the portion of the growth sent to him, and finds nothing but adipose tissue, while the real morbid growth is sent to another gentleman, who of course discovers its true nature, because he has the real growth, while Dr. Tyson had nothing but the subcutaneous tissue to examine. In the last case, Dr. Nancrede again confirmed the accuracy of the Committee's report upon the *section they examined*, in which he could discover nothing but of a fibro-cellular nature. When Dr. Simes told him that the specimen before the Society this evening was a most beautiful specimen of epithelioma, he was driven to one of two conclusions, viz., that the Committee, whose section he had not then seen, had made a mistake, or that he was on the eve of a most important pathological discovery, which was that *epithelioma* and so-called *fibrous cancer* were interchangeable. He naturally proceeded to re-examine the first growth. Taking the portion left imbedded by your Committee, and, after levelling the surface, removing a thickness of perhaps a sixteenth of an inch, he made three sections, all of which, to his astonishment, were typical specimens of epithelial cancer. Here two strokes of the knife would have prevented any mistake in the original examination.

Dr. NANCREDE then read the following notes of the case:

For the history of the first growth I must refer to the notes presented with it on the evening of September 27, 1877. The specimen before the Society was removed, January 2, 1878, from John McB., æt. 48 years, by trade a dyer. It consists of the contents of nearly the whole anterior superior carotid triangle, the large wound resulting from which, coaptated by hare-lip pins and sutures, has united well, except at its central portion, where skin was wanting for its complete closure. McB. states that the wound healed in about three weeks,—my term of hospital service having elapsed before his complete convalescence,—leaving, however, a suspicious tubercle at the spot originally left open for drainage. This nodule became painful and commenced to grow rapidly some three weeks after complete healing had occurred. After three weeks of rapid increase it apparently ceased to grow, at least superficially, remaining in the same state from the beginning of December until the 27th of the same month, when I first saw him. The growth was then about the size of an English walnut, with the surrounding tissues somewhat infiltrated, and firmly adherent to the old section of the lower jaw. It also was so firmly attached to the hyoid bone and thyro-hyoid membrane as to give considerable trouble in its removal, in which I was kindly assisted by my friends and colleagues Drs. Henry, Simes, and H. Reed.

Uterine growths. Presented by Dr. J. E. ESKRIDGE.

For the specimen and following history of the case I am indebted to Dr. P. B. Breinig, of Bethlehem, Pennsylvania, who writes, "The patient, a lady 45 years old, living in Berks County, Pennsylvania, noticed, about ten years ago, that her menses were very free, and that five years later the discharge was so great as to constitute menorrhagia. Two years ago she observed a hard tumor forming in the left side, low down, since which time more or less metrorrhagia, with contractile pains, has existed. By measurement with the sound, the uterus is found to be five and a quarter inches. There was found within the body of the uterus a roughness, which bled profusely when touched by the sound. The operation of scraping the cavity was performed, and about a tablespoonful of tissue, such as the specimen sent, was removed. There was but little hemorrhage: liq. ferri subsulph. was applied, and when I left the patient rested comfortably. Upon the left side of the uterus there is a fibroid tumor the size of half a fœtal head. There is no apparent cancerous cachexia."

Report of the Committee on Morbid Growths. —"The specimen presented by Dr. Eskridge, and referred for examination to the Committee on Morbid Growths, is seen to consist of numerous cysts lined with epithelial cells, and of bands of fibrillar connective tissue covered with epithelial cells, forming papillæ. The intercellular fibrous tissue between the cysts, and that forming the papillæ, is permeated by numerous dilated capillary blood-vessels, which at some places have ruptured, causing an extravasation of blood between the fibres. There is also an infiltration of large oval or round granular cells, containing large nuclei, in which are seen two or three large nucleoli. Other cells, somewhat smaller, spindle-shaped, and nucleated, are found, with many embryonic cells. The specimen from which the examination was made being only a scraping from the mucous membrane of the uterus, it was not possible to ascertain with certainty the exact nature of the new formation; but from the arrangement and structure, as above described, we are inclined to consider it a cystic papillary adenoma.

"February 14, 1878."

REVIEWS AND BOOK NOTICES.

JOHNSON'S NEW UNIVERSAL CYCLOPÆDIA. Vols. II., III., and IV.

In looking over the medical articles contained in these volumes, we find them, as a rule, reasonably complete, but well condensed, and bearing the marks of careful and intelligent revision. There are few omissions, and

the relative importance of the subjects as compared with one another seems to have been recognized and preserved with excellent judgment in the allotment of space. The professional reader, and probably many of the laity, might very properly ask, however, why, if only one page and a half could be spared for "Fever," less than a page for "Fracture," and a few lines for "Pathology," it was found possible to devote fourteen pages to a consideration of the "Flexure of Beams," twelve pages to the subject of "Foundation," and six or seven pages to "Pumps." This disproportion in favor of the articles on mechanics and civil engineering is frequently observable; and the same preponderance is generally given to the biographies of obscure divines and expounders of the gospel, at the apparent expense of many who might seem to the impartial reader as more worthy of special mention. It would be difficult to assign a satisfactory reason for dismissing the names of Dr. Physick, Dr. Valentine Mott, Dr. Nathan R. Smith, Dr. S. D. Gross, and others who have attained a similar rank in our profession, with the merest outline of their lives and works, while on an adjoining page may be found a circumstantial account of the nursing, weaning, and raising of some unknown and forgotten theological controversialist. We are consoled for some of these deficiencies, however, by turning to the articles on "Histology," by Dr. Woodward; on "Syphilis," by Dr. Otis; on "Osteology," by Prof. Cope, and to many others, which are as elaborate, as instructive, and as comprehensive as could possibly be desired. There is probably no other work of this character which contains so much information in regard to the special and collateral branches of medicine; certainly none in which the articles on these subjects so well represent the most recent views and developments of the science. Its merits can hardly be appreciated until, after frequent failure in other works of reference, you have met with almost uniform success in consulting it, or until a few odd hours have been spent in turning over its pages and noting the entertaining character of many of its articles and the distinguished names which are appended to them.

It fills a niche in the library hitherto unoccupied, and meets a want long felt, but until now unsatisfied. J. W. W.

PUBLIC HYGIENE IN AMERICA. By HENRY L. BOWDITCH, M.D. Boston, Little, Brown & Co., 1877.

We cannot but hope that the wide circulation of this book will awake a feeling of shame at our shortcomings which may lead to great results. The title is rather a misnomer: it might at least with equal propriety have been termed "Want of Hygiene in America." Still, the excellent work done by Dr. Bowditch and a few others deserves all the more praise, and already its results are beginning to be felt among people at large, certainly in the medical profession, where a higher education now includes hygiene among the subjects of study, and we trust in time, after popular education has progressed a little and medical men have continued and increased in their efforts to force the subject into notice, that legislative bodies will at last be induced to pass laws of practical value on the subject. The address of Dr. Bowditch, with which the volume opens, will be found extremely interesting and suggestive.

PNEUMONO-DYNAMICS. By G. M. GARLAND, M.D., Assistant in Physiology, Medical Department, Harvard. New York, Hurd & Houghton; Boston, H. O. Houghton & Co.; Cambridge, The Riverside Press, 1878.

To one who is satisfied with facts and cares nothing for the reason of facts, the work of Dr. Garland will not possess any peculiar interest; but as an example of intelligent experiment begun to obtain an answer to a definite question, or, as Dr. Garland himself says, "to interpret the handwriting on the wall," it is extremely satisfactory.

The question to be answered was, Why is the line of dulness in pleuritic effusion not a horizontal line? Does any one doubt the value of physiological experiment, we have here an irrefutable answer. We have here the greatest light thrown upon a common and dangerous condition,—a light, we are sure, quite unexpected to many, which will clear up the mists of doubt surrounding the question, and tend inevitably to alter our therapeutic and operative procedures. The author, having satisfied himself first as to the nature of the curved line of dulness, and confirmed the views of Dr. Ellis, of Boston, proceeded, by injecting the pleural cavities of dogs with various substances, to obtain casts, by their solidification, which would show the shape of pleural effusions. The substances employed in injections were glue, plaster, and cocoa butter, and the casts were obtained under various circumstances and conditions. Having proved, first, that external observation confirmed the S curve of dulness, second, that effusions artificially introduced produced on percussion the same curve, he then, extracting the casts, found them to coincide with the S curve, and to possess certain peculiar features in common, not to be readily explained on the ordinary view that effusions compress the lung and that dulness is produced by a layer of fluid between the chest-wall and the lung. Here again experiment, carefully and ingeniously conceived and executed, and described in plain and graphic language, cleared up the whole matter. The reader is convinced of the falsity of the old view. Perhaps the whole thing could have been explained by pure reasoning long ago; but it was not, and actual facts, solid facts, in plaster of Paris and oleum theobromæ, are

far more stubborn things than the ever-shifting language of theory.

The ultimate results of this discovery—for it is a discovery—have been sought out by Dr. Garland as far as time and space permitted. The chapters on "Diagnostic Importance of the Ellis Curve," the "Interpretation of Various Physical Phenomena of Pleurisy," the "Absorption of Pleural Effusions," are peculiarly valuable and suggestive. Viewed in the light of Dr. Garland's results, old facts assume a new appearance, old explanations hurry away into obscurity, and the thoracic walls seem almost crystalline in the clearer light with which the mind's eye gazes into their recesses. Diagnostic points are deduced—by logic which we cannot evade—of the greatest importance. A perusal of chapter vi. will show how completely the author differs from modern teaching, and we cannot show that difference better than the author does, when he says "that the lung lifts the fluid as it contracts. . . This idea forms the *pith* of my essay."

E. W. W.

ATLAS OF ILLUSTRATION OF PATHOLOGY. Compiled chiefly from Original Sources for the New Sydenham Society. Fasciculus I., Diseases of the Kidney. Plates I. to IV.

How many parts are to form the whole of the Atlas whose first fasciculus lies on our table, we do not know, but we are promised one a year for some time to come, and the arrangements will probably be such that the work may be completed at almost any time, so soon as it seems not to pay. Thus the second fasciculus, which is to appear during the current year, will form with the present one a complete illustration of kidney disease.

The plates of Fasciculus I. are very beautiful,—if the word can be applied to the bright and faithful portraiture of a hideous object. There has been no sparing of labor, expense, or color: indeed, the last commodity is seemingly over-abundant, for if there be any fault with the figures it is towards color-exaggeration. According to our thinking, it would have been wiser to spend the money here lavished upon chromo-lithography upon high science. Likely enough, however, the subscribers to the Sydenham Society are many of them more artistically inclined than we are. Such will be well pleased with this fasciculus, which well fulfils what it starts out to be,—a choice gallery of pathological beauties.

HANDBOOK OF THE PRACTICE OF MEDICINE. By M. CHARTERIS, M.D. Philadelphia, Lindsay & Blakiston, 1878.

The idea of compiling this handbook, the author tells us, was suggested by his own experience. He has tried to render it "handy," and it is handy,—*i.e.*, small in size, and in good, clear type; its language is good; intricate and disputed questions are carefully and skilfully avoided, and for the student anxious to try his hand at early experiment upon his fellow-beings it is probably as safe as any. For the practitioner it is scarcely to be recommended, though a perusal occasionally of its outline sketches might serve to freshen up forgotten points. In a hasty perusal we found nothing to object to, unless it be the omission of many things which seemed to us important. The difficulty, however, of reducing medical practice to such a small compass without important sacrifices is so obvious as to excuse everything except the attempt itself.

GLEANINGS FROM EXCHANGES.

DEATHS FROM ETHER—CAUSE (*The British Medical Journal*, March 2, 1878).—Mr. C. Dawson, after calling attention to the fact that in the last ten years one hundred and fifty-one deaths from anæsthetics have been reported in the *Lancet*, *British Medical Journal*, and *Medical Times and Gazette*, proceeds to analyze thirteen of these cases, in which ether was the anæsthetic, together with five others reported by American journals and occurring in this country; and the results are so interesting and important that they are given *in extenso*. Nine of the eighteen deaths were explained by various complications, such as previous pulmonary trouble, the entrance of food into the larynx, etc.; but in the other nine ether seemed to play no secondary part, nor even to be assisted by any untoward condition or circumstance.

The important facts connected with these cases are,—

1. Ether was inhaled in various yet limited quantities, from three inhalations of it up to as many as would consume half a pound on a towel; and then produced the symptoms ending in death. It was diluted with various quantities of atmospheric air, and given in various methods.

2. The face was reported to be "dusky," "blue," "dusky red," "livid," "cyanotic," or "turgid," in seven of the nine cases, and never said to be "white" or "pale;" in the other two the color is not reported at all.

3. In seven cases the heart did not cease till some time had expired after the commencement of the alarming symptoms, and after the ether had been discontinued; the intervals varying from four minutes to three hours. In those of which the notes were comprehensive, we read that the pulse remained feeble, weak, or good for a longer or shorter length of time after the ether had been discontinued, or after the alarm had been taken; in the other two cases no certainty on that point can be gathered.

4. The lungs were reported to have been gorged with blood in five cases, and the pulmonary artery in the sixth. In another the

trachea contained a clot of blood; and, of the remaining three, two cases were not reported at all; and in one case only, in which the patient died three hours after the ether-inhalation was over, were the lungs altogether "pale," and even then they were "œdematous."

Two deductions seem to follow from these facts:

1. The fatal effects of ether do not depend upon any directly poisonous property of its own.

2. These cases died by "asphyxia."

The following theory seems to explain the facts and the deductions.

The intense cold produced by the ether under certain circumstances causes the small blood-vessels of the lungs to contract, and so offer such degree of resistance to the right ventricle of the heart as to stop it if it be weak or wearied, and embarrass it if it be strong; and, by watching the symptoms from this point of view, we are likely to be able to cope with the dangers as they may arise, or even (may we hope?) to prevent their occurrence entirely.

Assuming that the deductions are logically based upon known facts, we are driven into a corner out of which only such a theory as this can help us.

The asphyxia by which these deaths occur cannot be said to be brought on by any interference with the nerves or nerve-centres directly concerned in respiratory movements, *i.e.*, by paralysis of respiratory muscles, like the asphyxia from carbonic dioxide poisoning; nor, on the other hand, by any mechanical interference with the air-passages, as the asphyxia from hanging or drowning; but must be from interference with the chemical process of the aeration of the blood in the air-cells and blood-vessels surrounding them. This interference is not due to the want of oxygen, because *none* of these cases show that oxygen was absent; but most of them show the reverse, pure atmospheric air having been breathed for some time before death. It must, then, be the result of the insufficiency of the circulatory action of the blood in the capillary vessels of the lungs to do their share in carrying on respiration. What obstructs this circulation? It cannot be that the blood is poisoned with ether; for in one case three inhalations only had been taken, and in another the ether had been administered for one minute only. It must be from some property of ether which comes into action in certain circumstances; and when we call to mind its power of producing intense cold under some conditions, we venture to inquire into the likelihood of that property being the cause of asphyxia. Suppose it to be true. Ether, in its administration, becomes a vapor by absorbing a fixed amount of heat from surrounding media, generally the atmosphere, and in that condition is inhaled into the larger bronchial tubes, and there becomes mixed with the residual air in the smaller tubes and alveolar spaces. From thence it is absorbed into and dissolved by the blood, becoming a fluid again virtually in that act, and therefore giving off a certain amount of latent heat. The heat diffuses itself through the body as well as the ether, and probably much faster, the latter having to be pushed on to other parts by the continued addition of more ether behind. This process goes on as long as ether is added. When its administration is discontinued or interrupted for any reason, and pure air allowed to enter the lungs, the amount of osmosis between the blood in the capillaries of the lungs and the contents of the air-cells is reversed. The ether, having now to change from the state of fluid to that of vapor again, reabsorbs the amount of heat it gave off on its entrance into the blood. If the air which has just entered the lungs be warm, the abstraction of heat for the re-evaporation of the ether will not be felt by the lungs, though it is sudden and local; but if, on the other hand, that fresh air be cold, whether on account of its passing through or close to an ice-cold instrument rendered so by the action of the ether, or from the room being cold, the amount of heat required suddenly by the ether in returning to the atmosphere will be more, and the lung-tissue, not having stored up the heat, will become so cold as to cause a violent contraction of its arterioles. Such an amount of obstruction from this contraction of a large number of vessels, without anastomoses or diverticula, so resists the right side of the heart that, unless the latter has an immense margin of strength, failure in its function is the result, and the patient dies in a space of time varying with the amount of resistance and the amount of strength the right ventricle possesses. If the death were rapid, there would be engorgement of the main branches of the pulmonary artery and the right side of the heart. But the heart may be able to overcome this obstruction; then the capillaries of the lungs become engorged, the chemical process in respiration becomes impeded, and the *vis a fronte* more or less lost. Here is another and perhaps greater resistance to the heart, and the latter, wearied out now, might fail. In this case, death would be more delayed than in the former; the pulse might be felt to become more and more feeble. Afterwards the lungs would be found engorged with blood, and the right side of the heart might be full of dark blood or the reverse.

But a strong heart might be supposed to overcome even this second resistance; then the engorged capillaries would throw out a quantity of serum into the air-cells and the surrounding tissues; that in the air-cells becoming frothy and being expectorated; that in the tissues, perhaps, after some time becoming reabsorbed, or possibly causing so

much difficulty in the acts of respiration as to constitute the last straw and break the camel's back by offering such embarrassment to the exhausted heart that the patient at last succumbs.

Mr. Dawson then proceeds to recommend Clover's inhaler, and to give his reasons for so doing, as well as minute instructions for the administration of ether, which are practical and instructive but will not admit of condensation.

Hæmoptysis (*The Boston Medical and Surgical Journal*, February 14, 1878).—In his report on the recent progress in the treatment of thoracic diseases, Dr. F. J. Knight quotes from the *Wiener Med. Presse* as follows. Jos. Hirschfeld says that among the therapeutic measures used against hæmoptysis cold deserves some recognition, as it, by reflex action, produces constriction of the vessels and diminution of their calibre, and so facilitates the formation of thrombi. The internal use of ice is to be preferred to the external application of cold. Any therapeutic procedure against hæmoptysis is essentially aided by deep inspirations (recommended by Niemeyer), provided the hæmoptysis does not come from a cavity. The expansive force of air breathed in and held in the lungs as long as possible exercises, evidently, a pressure on the walls of the vessels and on the gaping wound. The forced inhalation of astringents has not answered expectation. Styptics, such as alum, lead, tannin, chloride of iron, etc., taken internally effect but little and often disturb digestion. Of the narcotics, digitalis deserves special consideration, as it will show a beneficial although not a rapid action when the heart is excited, and especially when an uncompensated affection of the heart is the cause of the hæmoptysis.

The sovereign remedy against hæmoptysis is ergotin, which, as is well known, excites the vaso-constrictors. A solution in glycerin (1 : 10) is better than a solution in water, as after long standing it shows but little sediment and no fungi. After the injection the spot injected becomes very sensitive, with some heat, followed by redness, which disappears in eight or ten hours. If the patient is much excited or has much cough, the author is accustomed to precede the ergotin injection with one of morphia, or to give them both at once but in different places. In this way, the patient becoming quiet in mind and body, the ergotin has a better chance to act.

MISCELLANY.

Medical Graduates in 1878.—University of Pennsylvania, 127; Jefferson Medical College, 203; University of the City of New York, 153; Bellevue Hospital Medical College, 130; College of Physicians and Surgeons, New York, 109; Buffalo Medical College, 42; Medical College of Ohio, 102; Cincinnati Medical College, 33; Miami Medical College, Cincinnati, 51; Louisville Hospital Medical College, 17; University of Louisville, 71; Louisville Medical College, 70; Missouri Medical College, 102; St. Louis Medical College, 49; Medical College of Virginia, 12; College of Physicians and Surgeons, Indianapolis, 41; Indiana Medical College, 29.

The Royal Society.—So great is the desire for admission to the Royal Society, among certain classes of scientific men, that, although only fifteen will be elected, more than fifty candidates have either directly or indirectly entered into competition for the honor. The list of foreign members was made complete (fifty) at the close of last year by the election of seven members; but since then so great has been the mortality among the *savants* that there are already six vacancies in the foreign list.—*Medical Press and Circular.*

It is stated that the danger of epidemics being generated upon the battle-fields of Southeastern Europe is so pressing as to have attracted the serious attention of the life-insurance companies of Austria. Under their auspices a survey has been made, and immediate disinfection has been earnestly urged by them upon the Austrian government. It is estimated that at least fifty thousand corpses remain practically unburied. The idea of huge cremating-kilns is favored by a large section of sanitarians, that of destruction by quicklime by another, and a third maintains that burial in deep ridges will insure all that is required. In commenting upon the subject, a European exchange suggests the vigorous employment of every method of flesh-*destruction* as the only plan of averting with certainty one of those frightful epidemics of cholera and black plague which sends a shudder through one to contemplate.

"The last dose from a bottle containing a mixture of strychnia and bromide of potassium," says the *Detroit Medical Journal*, "poisoned the patient. The bromide had precipitated the strychnia."—*Boston Med. and Surg. Jour.*

Disinfection of Hospitals.—Some time ago the French Society of Public Health appointed a committee to report on the best means of disinfecting hospitals, etc. The report was read on the 27th of February of this year. It chiefly dealt with the value of heat as a means of purification. It is cheaper and more effectual than any other system which has come under the notice of the commissioners. The heat of the air must be raised to 212° or 220° Fahrenheit. During certain epidemics the pillows and beds supplied to patients should be filled with bran, which is immediately burned after their death or their discharge from hospital.—*Medical Examiner.*

NOTES AND QUERIES.

To the Editor of the Philadelphia Medical Times:

As one of the Commissioners of the new insane asylum, I desire to refer to some of the statements of your editorial of April 13, and offer for your readers another version of the matter, which, in justice to the Commission, I feel bound to do. Although I have been strenuously opposed to them on many points, and feel assured that they have acted in some ways contrary to the intent of the law and to the good judgment of the framers of the Act, and in opposition to the future welfare of the insane poor, yet the Commission has accomplished considerable, and should have credit for the same. In reviewing your article I shall simply take up the various "mistakes" you charge upon the Commissioo, and will present the facts of the case.

MISTAKE FIRST.

An appropriation of $25,000 was made by the Legislature, in May, 1876, to enable the Commissioners "to purchase the land and to make necessary preparations for the erection of the building." You say, "with a sum so small nothing could be done, and thus one year was lost." The Act says, "the Commissioners shall select, within four months of the date of their appointment, a tract of land not less than two hundred acres in extent, within a convenient distance of the city of Philadelphia, and easily accessible from all the counties embraced in the southeastern district." Governor Hartranft did not complete the appointment of the Commissioners until late in December, 1876, nearly eight months after the passage of the Act. When the Commissioners organized, they were then required to select a site during a severe winter period and make a choice from some one hundred and fifty farms. All the eligible places had to be visited and carefully inspected,—no small amount of labor, I assure you; and this was done within the time specified.

MISTAKE SECOND.

The usual course adopted by Legislatures in providing for State asylums for the insane has been to appropriate a sum of money to commence the work, and then to appoint a Board of Commissioners,—generally three or five,—and after this to make yearly appropriations, thus causing much loss of time and money. So, in appropriating at once the whole amount for the new hospital, the Legislature did wisely, and, because of this, some who have been interested in other State asylums have felt aggrieved on account of this discrimination in favor of the new hospital. Again, the Commission is not bound to provide for seven hundred patients, as you say. The Act says the cost "shall not be more than eight hundred dollars per patient, exclusive of the land;" so that, deducting the amount paid for the land, 675 patients in all are to be provided for. You say this is "unprecedented cheapness." I agree with you that to those who have heretofore been intrusted with building such hospitals, where the cost has generally exceeded $1500 to $2000 per capita, and frequently ranged from $3000 to $4000, the proposal to build for $800 per inmate may seem impossible. Let such as doubt if the insane poor can be accommodated for a reasonable amount visit Willard Asylum, and they will find the present per capita expense is but $825.

After the Commission was organized, some of the members, to whom the subject was new, endeavored to familiarize themselves with the defects and good parts of the hospitals already built, while I, as chairman of the committee on plans and buildings, visited a large number of insane asylums in this and other States. You think "their incompetence was rendered all the more disastrous by their large number," and offer as a reason that delay was occasioned by their residing in various counties so that they could not readily attend the meetings. I can only say that no meeting was ever called at which a quorum, at least, was not present. A commission made up of those "knowing something of hospitals" would doubtless have gone ahead at once, but the State would have had probably one of the usual State hospitals,—a counterpart on the stereotyped plan laid down by authorities on the subject, and not such a one as the Legislature desires erected for the insane poor, complete, thoroughly built, but inexpensive, and without costly architectural adornment.

MISTAKE THIRD.

Under this heading you accord the Commission some credit for the site at Norristown, and go on to say that "the plans were advertised for, not foreseeing, apparently, that many would be offered indicating as little knowledge of the requirements of a hospital for the insane as they had themselves." In dealing with this public work it was thought best to vary the usual plan adopted by former commissions; and the results proved satisfactory, for, after considerable labor on the part of the committee on plans, and consultation with several medical superintendents of the insane, as to details, the specifications of the hospital were carefully drawn up, and then printed for the use of architects who desired to compete in the work. From the number of plans sent in (twenty-eight) five were selected. You say, in speaking of the immediate selection of an architect, as "any one would do if about to build a house, etc.; had this sensible and customary course been taken by the Commission, the result, we are sure, would have been far more satisfactory." You may not know, Mr. Editor, the course adopted by previous Commissions, but it has not always worked so well as you may suppose. I may simply cite one instance, that of the Warren Hospital, which has been for several years in process of building. The commissioners of this hospital—supposed to "know something about hospitals" (and, by the way, these gentlemen all reside hundreds of miles from the site)—did select an architect at once, who prepared a plan, I am informed, simply an outline drawing of the plan adopted for the Danville Hospital, and, after serving some time, demanded no insignificant sum; finally a compromise was effected, and he was dispensed with. Our Commission agreed with the architects on a definite sum only for two years' work, when it is confidently believed that the building will be ready for occupancy; if not then finished, the Commission can pay or not for future work, as it deems best.

In regard to the selection of the architect, my vote was given for Mr. Sloan, whose plan was in all respects the most perfect, who has had an experience in building twenty or more hospitals for the insane, and whose knowledge of details and how to estimate judiciously in such work fully equals that of any other architect, certainly that of any of the architects whose plans were selected; and, as Mr. Sloan offered to build the hospital complete for seven hundred and fifty patients and for a sum within the appropriation, he received my vote. The Commission, however, selected architects whose plan required such radical changes that many weeks were consumed in preparing the final plan which the Commission adopted, and this was only accomplished after consultations with Dr. C. H. Nichols, of Bloomingdale, New York, Dr. Chapin, of the Willard Asylum, New York, Dr. Reed, of Dixmont, Pa., and others. These gentlemen went carefully over the plans, giving their counsel, and also expressed themselves as well pleased with the general plan of the work. No one appears to know why such a discrimination was made against Mr. Sloan's plan, and in this I agree with you that the Commission made a mistake, for it was well understood that not only the most perfect plan, but also the architect furnishing the same, would be accepted, and this mystery I have reason to believe may at no distant day be partially solved to the satisfaction of the public.

MISTAKE FOURTH.

You say, is that the plans cannot be altered without the consent of the Board of Public Charities. What the Act does say, and it is an exceedingly important point, is, "that no changes are to be made in the same so as materially to affect its general character, without the consent of the Governor and the Board of Public Charities." This I look upon as a most excellent restriction, and if such a clause had been in the act of construction of all State hospital buildings there might be to-day far less cause for complaint. I may instance the course pursued at Morristown: the Commissioners, after the plan had been adopted, made immense changes, involving the State in an outlay of two and a half millions of money, and the building is not yet completed. Such changes have most effectually put an end to the erection of insane asylums in New Jersey for many years to 'come, and have made Legislatures all the country over very cautious about commencing them. Nor can I understand the tone of the criticisms upon the Board of Public Charities, which seem to be interjected into the general discussion without any sufficient cause.

MISTAKE FIFTH.

The Act was drawn up by those who have devoted the best part of their lives in work for the good of the insane poor, and who well knew that a hospital could and ought to be built for an amount far less than that usually supposed to be required. When the offers for the new hospital were opened, all of them were found to be in excess of the amount appropriated. The specifications were changed, and estimates were afterwards made on the new basis, and a contract for a part of the buildings was entered into for $382,000, to accommodate 680 patients, a number somewhat greater than the law requires. The administration building was dispensed with. Some of the Commissioners thought that an old house on the place could be used for this purpose. The kitchens, which were small enough, were reduced in size, and one ward, designed for eighty excited patients, was dispensed with. In one of the other ward buildings this class will be accommodated. It must be remembered that even in leaving off this excited ward building, so called, the number of patients required by the law to be provided for has still been

kept in mind. When the subject of this reduction of the buildings was discussed, I earnestly appealed to the members, the Governor being present, to complete all the buildings, but in a manner less costly, dispensing with marble and granite and towers, etc., but my efforts were overruled.

In regard to the heating, ventilating, etc., I am with you in your remarks. I labored for this to be otherwise when I offered the following resolution in the Board, viz., "that no contract for any part of the work for the hospital shall be awarded until estimates for the entire work, as complete and ready for occupancy, shall be in the possession of the Commission, with the usual bonds for the faithful performance of the same." This I did in order that not only the spirit but the letter of the Act should be complied with in every respect; but I regret to say that only one or two other gentlemen voted with me in supporting this measure which all prudent men will see the force of. The Commission gave out a contract for a portion of the work, leaving the very important and costly part of the hospital yet to be provided for, viz., the gas-works, the water-works, the heating, plumbing, sewage, and grading, besides other more or less important matters, to do it all if they can, if not, to go back to the Legislature if they find the money they have left insufficient to complete the work. In regard to the architectural arrangement, the committee on plans recommended, after a careful study, the isolation of several ward buildings. These are placed one hundred feet apart,—not eighty, as you say,—joined by a basement and a covered way, so that at any period of the year, through all weathers, communication will be easy and without exposure for patients or medical officers. For this you also condemn us. This general arrangement of the new hospital has been warmly approved by a number of superintendents of insane hospitals; but the fact cannot be disguised that because this hospital will be materially different from those already built,—will, in fact, cause a new departure as to cost as well as the manner of building in the future,—we are looked upon as being presumptuous.

You say that a prime requisite in hospital construction is facility of surveillance, and that any plan which fails to provide this is defective; that the nearer the employés and patients are brought to the chief the more perfectly will they be kept under his observation, etc. In the new hospital this is just what the committee on plans have accomplished. In each of the ward buildings—which is in fact a complete hospital in itself—there is a central administration building, in which an assistant physician will reside, so as to be in immediate association with his patients. If your premises are correct, how defective is the Morristown hospital, where the superintendent and his assistants all live in the centre building, nearly one-fourth of a mile from some of the patients! In others, the superintendent lives in a building entirely isolated; and so it is found over and over again. Our plan corrects this, and places the medical men among their patients, where they ought to be. In our plan the diminished risk from fire is an all-important point. Our buildings are but two stories in height,—certainly a merciful provision for the feeble at least,—and are provided with three sets of fire-proof stairways; and the risk to life, escape being so easy, is practically removed. We have a central heating supply and a central kitchen. The dangers by fire are thus at a minimum, for in none of the buildings will there be any fire at all, with the exception of a few gas-jets. In regard to the distribution of food from a main central kitchen, you can make yourself quite comfortable concerning the impossibility of keeping food warm. All the experts in this matter with whom we have consulted were quite satisfied that in this there was no practical objection, for at Morristown and similar large hospitals the distribution is quite as often over greater distances. In conclusion, permit me to say that the public desire to provide for all the insane poor, and if the new departure shall even measurably be carried out the desired result will be attained.

Very respectfully,
THOMAS G. MORTON,
Chairman of the Committee on Plans and Buildings.

CHARLESTON OFFICE, MILLS HOUSE,
March 12, 1878.

DR. S. WEIR MITCHELL,—I wish yourself and your friends in Philadelphia to test for me the utility of the prescription which follows, used as a *preventive of diphtheria*. I am a full believer in the applicability of the maxim *obsta principiis* to practical purposes. I think that every moment lost in beginning the treatment of a disease like yellow fever, for example, materially lessens the chance of success. I think that whether or not we believe in the production or spread by germs of a disease like diphtheria, a combination of suitable remedies used very early *in* or before the disease makes its appearance, can prevent or destroy it. I have therefore proposed, and have, I think, successfully used, the following combination:

℞ Chlorate of potash, ʒi to ʒii;
Mur. tinct. iron, ʒi to ʒiii;
Quinine, gr. xv to xx;
Hyposulphite of soda, ʒj;
Water, ʒvii.

Teaspoonful to dessertspoonful to be used three times a day by those *exposed* to the disease.

No physician can object to the prescription even if given after the disease is declared, as the ingredients are used very generally. I have referred to the subject, giving the combination and my ideas with regard to it, in a review published in the *Charleston Med. J. & Review* some months since. Very many families here have used it, and do so habitually. It is, I am aware, negative testimony, but none have taken the disease. If they did take it, I am incapable of improving the prescription. There is no difficulty in its administration. It can do no harm, being in such small doses a very good tonic, and productive of no injury whatever, as abundant experience has shown to me.

I think this a very important matter, if I am correct, and am borne out by facts or the experience of others.

I remain, dear sir, with great respect, yours,
F. PEYRE PORCHER, M.D.

THE writer would be glad to have the opinions of physicians as to the *actual results* in their practice of the use of *dialyzed iron*. He frankly confesses that, in his hands, it has failed to meet the expectations he had been led to form of it. This has been especially the case in some instances of marked anæmia resulting from hemorrhoidal loss of blood. Here the exhibition of dialyzed iron, in full doses, failed entirely to show any obvious chalybeate effects on the blood, while the substitution for it of the pill of carbonate of iron (Vallet's) in one instance, and of the tincture of the chloride in the others, was soon followed by redness of the lips, a better color in the cheeks, and an improved tone of the general health. The new medicine certainly has the negative merit of absence of taste and of irritating properties: it would be unfortunate if it has also the negative property of inefficiency.

JAMES J. LEVICK.

1200 ARCH STREET, April 10, 1878.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U. S. ARMY FROM APRIL 7 TO APRIL 20, 1878.

RANDOLPH, JOHN F., MAJOR AND SURGEON.—Relieved from duty at Fort Trumbull, Conn., and to proceed to Philadelphia, Pa. S. O. 66, Department of the East, April 16, 1878.

IRWIN, B., JR., MAJOR AND SURGEON.—Relieved from duty at U.S. Military Academy, West Point, N.Y., August 28, 1878, and then to report by letter to the Surgeon-General. S. O. 79, A. G. O., April 13, 1878.

ALEXANDER, C. T., MAJOR AND SURGEON.—To report in person to the Commanding General, Department of West Point, for duty at the Military Academy, August 28, 1878. S. O. 79, c. s., A. G. O.

WATERS, W. E., CAPTAIN AND ASSISTANT-SURGEON.—Assigned to duty as Post-Surgeon at Fort Clark, Texas. S. O. 77, Department of Texas, April 10, 1878.

MIDDLETON, P., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty in Department of Texas, ordered before the Army Medical Board, New York City, for examination for promotion, and after examination report by letter to the Surgeon-General. S. O. 72, A. G. O., April 6, 1878, and relieved from duty at Fort Clark, Texas. S. O. 80, Department of Texas, April 13, 1878.

JESSOP, S. S., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month from June 1, 1878, and his resignation accepted, to take effect June 30, 1878. S. O. 74, A. G. O., April 9, 1878.

POPE, B. F., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty in Department of Texas; ordered before the Army Medical Board, New York City, for examination for promotion, and, after examination, report by letter to the Surgeon-General. S. O. 72, c. s., A. G. O., and relieved from duty at Fort Stockton, Texas. S. O. 80, c. s., Department of Texas.

STYER, CHARLES, CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty in Department of the East, ordered to Philadelphia, Pa., and, on arrival, report by letter to the Surgeon-General. S. O. 81, A. G. O., April 16, 1878.

CORSON, J. K., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month. S. O. 63, Department of the East, April 8, 1878.

HAVARD, V., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Granted leave of absence for six months, with permission to go beyond sea. S. O. 71, A. G. O., April 5, 1878.

WYETH'S DIALYSED IRON.

(*FERRUM DIALYSATUM.*)

A Pure Neutral Solution of Peroxide of Iron in the Colloid Form. The Result of Endosmosis and Diffusion with Distilled Water.

PREPARED SOLELY BY

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This article possesses great advantages over every other ferruginous preparation heretofore introduced, as it is a solution of Iron in as nearly as possible the form in which it exists in the blood. It is a preparation of invariable strength and purity, obtained by a process of dialysation, the Iron being separated from its combinations by endosmosis, according to the law of diffusion of liquids. It has no styptic taste, does not blacken the teeth, disturb the stomach, or constipate the bowels.

It affords, therefore, the *very best* mode of administering

IRON

in cases where the use of this remedy is indicated.

The advantages claimed for this form of Iron are due to the absence of free acid, which is dependent upon the perfect dialysation of the solution. The samples of German, French, and American Liquor Ferri Oxidi Dialys., which we have examined, give acid reaction to test paper. If the dialysation is continued sufficiently long, it should be tasteless and neutral.

Our Dialysed Iron is not a saline compound, and is easily distinguished from Salts of Iron by not giving rise to a blood-red color on the addition of an Alkaline Sulpho-Cyanide, or a blue precipitate with Ferro-Cyanide of Potassium. It does not become cloudy when boiled. When agitated with one part of Alcohol and two parts of Ether (fortior), the Ether layer is not made yellow.

Physicians and Apothecaries will appreciate how important is the fact that, as an antidote for poisoning by Arsenic, Dialysed Iron is quite as efficient as the Hydrated Sesquioxide (hitherto the best remedy known in such cases), and has the great advantage of being always ready for immediate use. It will now doubtless be found in every drug store to supply such an emergency.

FULL DIRECTIONS ACCOMPANY EACH BOTTLE.

Physicians will find our DIALYSED IRON in all the leading drug stores in the United States and Canada.

It is put up in bottles retailing for ONE DOLLAR, containing sufficient for four months' treatment. Large size is intended for hospitals and dispensing. Retail at $1.50. Price Lists, etc., etc., sent on application.

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WYETH'S COMPRESSED TABLETS OF CHLORATE OF POTASH.

For Hoarseness, Bronchial Irritation, Sore Throat, Diphtheria, Croup, etc., etc.

Chlorate of Potash is a remedy of acknowledged value in cases of Diphtheritic Sore Throat, and in Inflammation of the Mouth and Throat, induced by a depressed state of the system. In these instances, as in the milder forms of Croup, it has, besides its depurative and detergent effects, a solvent action on the deposits characteristic of those troublesome and dangerous affections. It relieves Hoarseness; and in many cases of Fetid Breath from disordered secretions, it proves an efficient corrective. Its virtues in simple Angina, or ordinary Sore Throat, are recognized by many of the most eminent physicians.

As the taste of this article is not disagreeable, we have prepared it in the form of Compressed Tablets, thus giving the patient the full benefit of its action, undiluted with Sugar, Gum, or other vehicles, which would not only prevent its effects, but which sometimes themselves offend the stomach.

The Lozenges usually contain about twenty-five (25) grains of gum and sugar, with two grains of the Chlorate of Potash, while each of these Pills contains simply five grains of the Chlorate, all of which, dissolved in the saliva, acts on the affected mucous membranes.

If allowed to dissolve in the mouth, the topical effect is much more efficient than a saturated solution, as while the solution is but temporary, the tablet really acts as a continuous gargle.

FOR SORE THROAT, HOARSENESS.

DIRECTIONS.—Adults should take one every hour or two until relieved, allowing it to dissolve slowly in the mouth. Children, half of one as often.

For Offensive Breath, no remedy will give more certain relief; use one two or three times a day.

For Diphtheria, Croup, and the more serious ailments, the physician should direct.

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served in the handy Siphon Bottles, gives the facility of at home a healthy and refreshing drink; mixed with cordial, syrup, wine, or beer, it makes a strengthening and hygienic beverage, promoting digestion, and causing no intoxication or injurious effects.

This is nature's great remedy, for dyspepsia, flatulency of the stomach, loss of appetite, etc., and is particularly recommended for children by all eminent physicians. Delivered to all parts of the city at 10 cents per Siphon.

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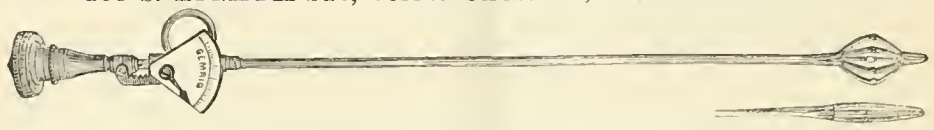

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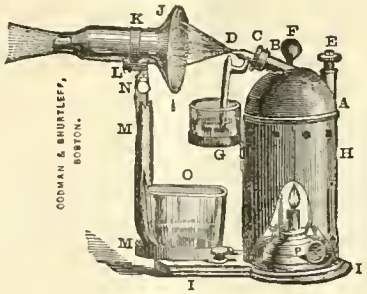

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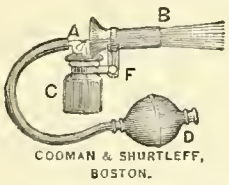

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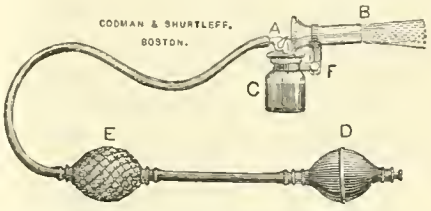

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